

American Artisan

Founded 1880

The Warm Air Heating and Sheet Metal Journal

Vol. 95, No. 12

CHICAGO, MARCH 24, 1928

\$2.00 Per Year

Your Customers' Protection
Against RUST-FIRE!*



Ingot Iron



Rust... Fire... The only difference between rusting and burning is time—both are oxidation. You can see and feel the fire produced by rapid burning. But when metal rusts the process is too slow to be seen. Rust is the ash of this fire.

Your customers—whether home owner or plant owner—need not pay costly tribute to **Rust-Fire**. Your skillful work with rust-resisting **ARMCO Ingot Iron** protects their investment and wins you their future patronage.

ARMCO DISTRIBUTORS' ASS'N OF AMERICA
EXECUTIVE OFFICES, MIDDLETOWN, OHIO

Growing Up With Homer



As a babe in the Homer Sales organization growth is inevitable. The recognized quality of Homer furnaces is food for sales growth and profits. A Homer Agency contract means new birth to your business success.

J. B. COMSTOCK



Mercer, Pa.
November 15, 1917

Dear Furnace Company
Coldwater, Mich.

Attention, Mr. C. B. Strong

Because of my pleasant association with the Homer Furnace Company, I feel prompted to write you this bit of information.

For the past twelve years I have sold Homer Furnaces very successfully through your dealer co-operation plan. During this time I have had less competition from all makes of furnaces but Homer invariably wins out.

I have sold and installed 200 Homer Furnaces during this period and every year to a satisfied customer. An outstanding feature is that all my dealings with the Homer Furnace Company have been fair and enjoyable.

With the advent of the Homer "Steel King," "New Homer Grand," and "New Homer Ace" during the past year, I find my sales have been increased with greater ease than ever before. Users say it's some job for perfect heat distribution.

Yours for greater home sales.

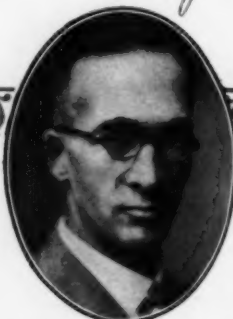
Jim



Twelve years and still growing because of established reputation and satisfaction of heat distribution. That is why Homer Agency contracts are so desirable. They grow in strength and popularity.



HOMER "GRAND"



MR. J. B. COMSTOCK

In Mercer, Pa., Mr. J. B. Comstock has the enviable reputation of supplying Homer heat and comfort to 700 home owners with diminishing sales resistance because of a continually improved Homer product. Twelve years has been the life of his Homer Agency contract and each year has demonstrated growth in Homer popularity.



HOMER "ACE"

When furnace dealers become associated with the famous Homer warm air ventilating furnace through a Homer Agency contract they immediately experience growth in sales volume and net profits. This is due to the quickly recognized superiority of a Homer made heat unit. Homer dealer customers experience fuel economy, a more uniform temperature caused by the moist healthful heat and greater ease of operation due to modern construction based on heating code requirements. Every Homer furnace dealer is a popular character in his community because of the satisfaction every Homer user enjoys.

HOMER—THE COMPLETE AGENCY

Plan with us for a Greater, more Profitable Business

HOMER FURNACE CO., Coldwater, Michigan, U. S. A.

Capacity over
30,000 Furnaces
Annually

*What's home
without a Homer?*

There's Harmony
in Homer Heated
Homes



This is the Sales Demonstration

IT shows right before their very eyes the *second fire* created by the Carburetor in the SUPERIOR SUPER-SMOKELESS Warm Air Furnace. It can't be denied—Seeing is Believing!

And the smoke stack! In an inconceivably short time after you open the Carburetor door, the thick, black smoke of even a freshly stoked soft coal fire has vanished.

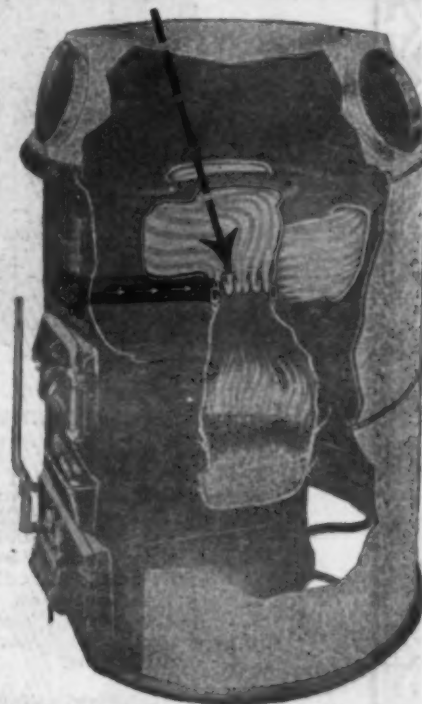
This visible, actual demonstration which you can stage so *easily*, is just one reason why the SUPERIOR SUPER-SMOKELESS sells in such numbers—in soft coal territory, in hard coal territory.

Utica Division
Richardson & Boynton Company
Successors to Furnace Department

UTICA HEATER COMPANY
UTICA, N. Y.

New York Office: 260 Fifth Ave.
Chicago Office: 3639-45 S. Ashland Ave.

Makers of Superior Pipe and New Idea Pipeless Furnaces



**SUPERIOR
SUPER-SMOKELESS
WARM AIR FURNACE**

SUPERIOR DEALERS ARE EXCEPTIONALLY LOYAL---WHY?

Published Weekly by American Artisan and Hardware Record, Inc., 620 South Michigan Avenue, Chicago, Illinois.
Entered as Second Class Matter June 25, 1897, at the Post Office at Chicago, Illinois, under act of March 3, 1879.

Heating Capacity-- By the Yard

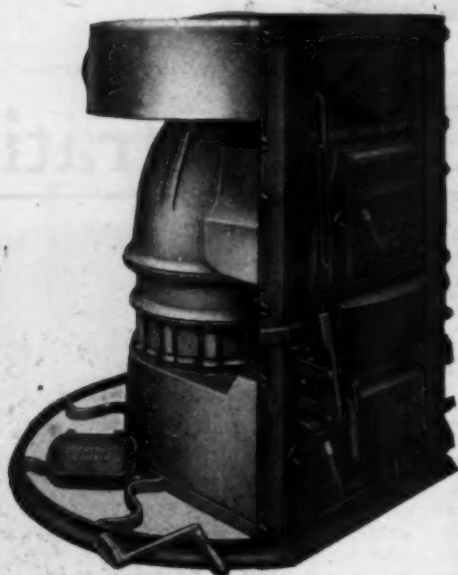
ACTUAL "yard-stick" measurements of the grate area, heating surface, firepot, and fuel and ash doors will demonstrate the superiority of the Lincoln dust and gas proof furnace.

The Lincoln Furnace is but one of the very complete line of furnaces offered by the American Foundry and Furnace Company. We supply the dealer with the three essentials for success; namely,

A very complete line.

A sound but adaptable time-payment plan.

Dealer helps in advertising.

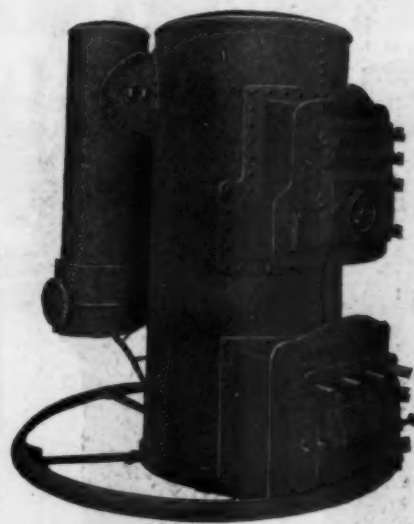


Lincoln Improvements

1. Easy to operate.
2. Ball-bearing Grates.
3. Feed Section Thru Front.
4. Large Fuel and Ash Doors.
5. Covered Joints Thruout.
6. Two-piece Slotted Firepot.
7. Upright Shaker Handle.
8. Deep, Roomy Ashpit.
9. Radiator Cleanout and Smoke Pipe Cast in One Piece—All Collars Cast On.

WRITE FOR CATALOG AND PRICES
DEPT. 300

AMERICAN FOUNDRY
AND FURNACE CO.
BLOOMINGTON
ILLINOIS



~ a Better Furnace
~ a Bigger Profit

*Nine Distinctive Improvements
10% Cash Discount*

The nine improvements make the 1928 model Front Rank easier to sell, at a better price, and easier to install, at less cost.

What's more we offer you an extra cash discount of 10 per cent in force until May 10th.

Lower first cost—less labor cost—and a bigger selling price if you want it! A better furnace for your customers and a bigger profit for you.

We still have some exceptional openings for GOOD furnace dealers. Write us today.

LANGENBERG MANUFACTURING CO.

4545 Euclid Ave. St. Louis, Mo.

Makers of



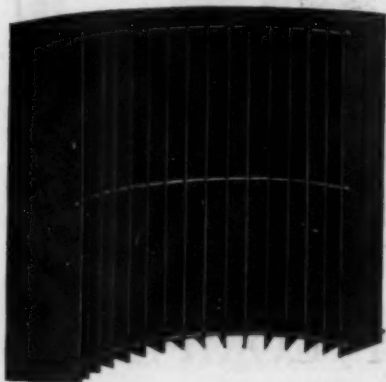
1888 40 YEARS OF CONTINUOUS SERVICE 1928

M138



*Lifetime Quality Features
of
Hall-Neal Fin-Radiation
Furnaces*

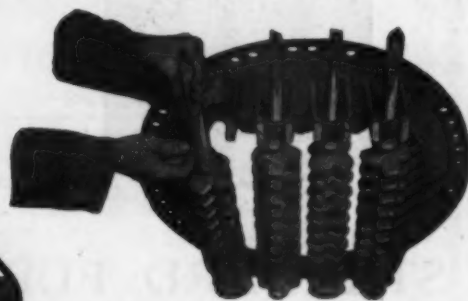
ONE-PIECE base ring (easy to level).—Heavy four-sided revolving grate bars.—Long handled shaker crank (waist high—no stooping).—Thick fire brick fire-pot (fitted—never burn out).—Diving flue radiator self cleaning (never clogs up—will not rust out).—Sectional casing (all holes cut—sure fitting).—Two-piece dome (never leaks).—Grates removed without tools.—Any kind of fuel.—Welded ashpit bottom.—Every part extra heavy.—Steel joints riveted or welded as proven to be the best from our 26 years' experience manufacturing furnaces.



INTERCEPTING Heat Conveyors or Fin Radiators. Assembled complete. Easily put on after dome is in place, simply by hanging them on strong hooks on furnace body.



ASSEMBLY complete of ash-pit section with grates and fitted fire brick in place.



THE grate bars are of finest quality and operate independently to provide proper fire control. Removal of ashes is absolutely uniform. Each grate bar can be removed without tools, simply by removing a small supporting lug, as shown in the illustration.

3 times greater
heating surface than any
other furnace construction
HALL-NEAL

Fin-Radiation Furnaces

THE construction is Patented, therefore an **exclusive feature** of Hall-Neal Furnaces.

Tests made by independent experts show that Fin Radiation adds 20% more heating efficiency—shows that less fuel consumption with this construction is a fact.

Besides these important advantages this design eliminates choking of radiators by soot and reduces the outside dimensions of the furnace.

**Patented Sectional Casing
and other installation features**

Victor Furnaces are equipped with the Neal Patented Sectional Casing which makes installation easy and quick.

Another feature of this sectional casing is its dust tight construction.

**Only 63 inches high over all—One man can
set up—Passes through any stairway—
Easier, faster assembling.**

Here is **the REAL HEATING PLANT**—clean, healthful and plentiful heat—a true business builder.

*The exclusive agency for your territory
may be open—have us tell you about it.*

HALL-NEAL FURNACE COMPANY

1322-32 North Capitol Avenue

INDIANAPOLIS, IND.

Here's Proof— of More Heating Surface & Greater Efficiency

The superiority of Boiler Plate Steel furnaces is shown by comparison with a cast iron furnace of the same size.

These figures were furnished us after a careful investigation by the engineers of the Warm Air Heating and Ventilating Association.

The furnaces compared are our "AFCO" Boiler Plate furnace with an outer drum 20 inches in diameter and our Thermo Cast Iron furnace with a 20 inch fire pot.

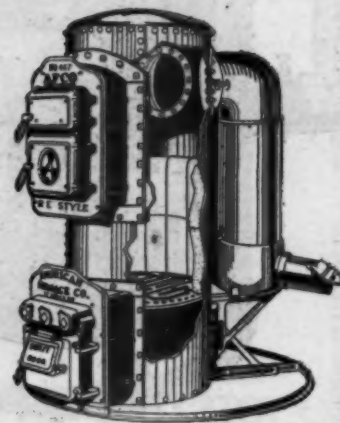


	Sq. inches of Grate	Sq. inches of heating surface
AFCO Boiler Plate Furnace	192	6439
Thermo Cast Iron Furnace	224	4057

The heating efficiency of the Boiler Plate furnace is more than 58% greater than the Cast Iron furnace. The saving in fuel is evident.

This is only one of the many important reasons why you should be selling "AFCO" Boiler Plate Furnaces.

Ask for a free copy of our new 1928 catalogue.



This is the R. E. Style "AFCO" Boiler Plate Furnace. The most efficient—cleanest and strongest furnace built. You should be selling it now.

American Furnace Co. St. Louis, Mo.

"COMPLETE SERVICE" CLAIMED AND PROVED

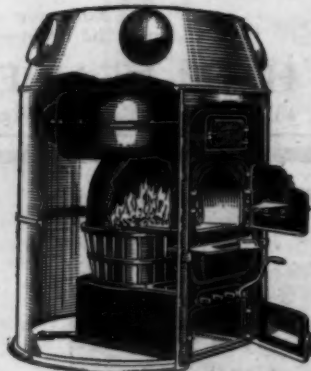
Hundreds of dealers now know this to be a fact

No longer is it necessary for them to look to other sources for any part of their furnace or supply needs.

1928 finds our facilities greatly improved and even better service may be expected by our friends who already know that "Standard Service" is Different and Better.



Weir Steel Furnace



Nesbit Cast Iron Furnace



Stan-Co Steel Furnace

STANDARD FURNACE & SUPPLY COMPANY
Manufacturers and Distributors
OMAHA, NEBRASKA



A New Advanced Furnace developed by on old experienced organization



Feed Section

This illustration shows how the upper front panel fits over and around the feed section. The lower front panel fits over and around ash pit in the same way.

Forty-four years of heating experience are back of the new Sunbeam Furnaces, 1000 Series. Forty-four years of knowing how to construct heating equipment of the highest type. Forty-four years of constantly developing new ideas so that Sunbeam products will lead the advance of progress in the heating industry.

That Sunbeam, in 1928, has kept pace with its 44-year-old ideals is evidenced by its latest contribution, the Sunbeam Warm-Air Furnaces, 1000 Series. These furnaces have every refinement and improvement that you could seek.

The new Sunbeam Heating Manual and Catalog describes them in detail. Ask for a copy. It also contains page after page of worth-while heating data. Use the coupon below. Decide to learn now—today—how the complete Sunbeam Furnace line opens the door to greater sales and substantial profits.



One-Piece Radiator

Radiator, smoke collar and clean out are cast in one piece. Gas or smoke cannot escape into warm air chamber. Radiator opening is extra large.

The new **SUNBEAM** WARM-AIR FURNACES *1000 Series*

SUNBEAM SUPERIORITIES

1. Massive Radiator, Cleanout and Smoke Collar cast in one piece.
2. Feed Section extends outside of front of furnace.
3. Ash Pit extends outside of front of furnace.
4. More than 20 feet of joint within warm air chamber eliminated.
5. Two types of grates—Boller or Flat—are available.
6. Easy-to-operate shaking lever.
7. All joints are deep clean-cut cup joints.
8. Doors and door openings are machine-ground in special jig to insure air-tight fit and absolute control of fire.
9. Heating unit is centered.
10. One-piece base with high casing flange reduces installation time.
11. All castings machine-molded. Are uniform in thickness and strength.

THE FOX FURNACE COMPANY, Elyria, Ohio
Largest Makers of Heating Equipment in the World

RETURN THIS COUPON

**THE FOX FURNACE COMPANY,
Elyria, Ohio.**

Please send a copy of the new 40-page Catalog and Heating Manual.

Name

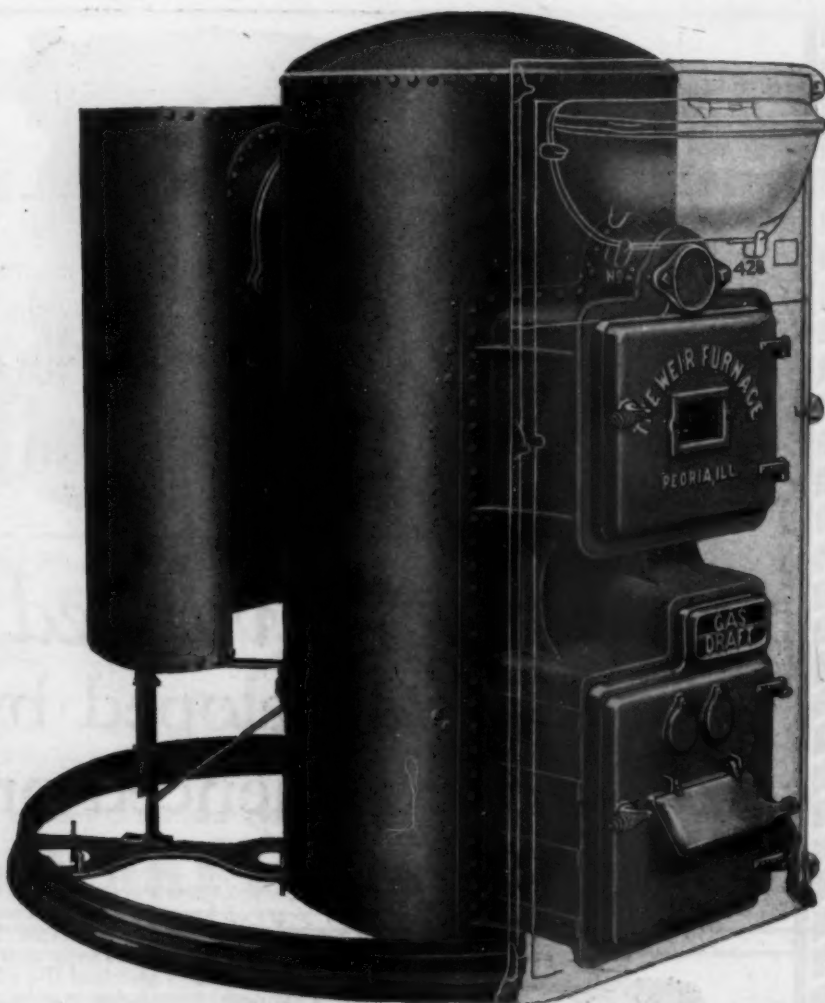
Address

City and State.....A-4

Weir

the Original

Steel Furnace



IT is fitting that the Weir, the original steel furnace, should be the highest grade steel furnace on the market today.

Now in its 46th year, the Weir is still the same in fundamental design and quality—the highest type of construction and the best quality.

Naturally many refinements and improvements have been incorporated—from time to time—in fact Weir has always been the leader in producing genuine improvements in furnace construction—it

has always been ahead of the times.

In spite of the fact that it is the acknowledged leader and the **highest priced steel furnace** made—you will be agreeably surprised to find its price modest in comparison to its extraordinary high quality.

It is the furnace for Standard Code work—the furnace for dealers who sell **warm air heating**, the furnace that is backed by an Engineering Service second to none—the furnace that makes better profits for you.

Just write for "The Weir Book of Facts"—it tells all about it.



The MEYER FURNACE Co.
Peoria, Illinois

When writing mention AMERICAN ARTISAN—Thank you!

January 9, 1928

Hess-Snyder Co.,
Massillon, Ohio.
Gentlemen:

I have one of your cast iron furnaces which has been in use since 1888 and is good yet all excepting the water pan which is rusty and I wish you would send me a new water pan.


Yours truly,

(Signed) Charles D. Eliot,
317 Third Avenue North,
Great Falls, Montana.

**We invite any manufacturer of
furnaces to show a better record.**

The HESS-SNYDER COMPANY
MASSILLON, OHIO


Makers of BOOMER FURNACES for Forty-Three Years



BOLTS

WE MANUFACTURE A COMPLETE LINE OF BOLT PRODUCTS, INCLUDING STOVE BOLTS, CARRIAGE BOLTS, MACHINE BOLTS, LAG BOLTS, NUTS, COYTER PINS, ETC. ALSO STOVE RODS, SMALL RIVETS AND HINGE PINS. CATALOG ON REQUEST.

THE LAMSON & SESSIONS CO.
THE KIRK-LATTY CO.
1971 W. 85th St. Cleveland, O.



IF there is a tool or machine that you need and you don't know where to get it—

Write to the

Notes and Queries Dept.

of

AMERICAN ARTISAN

Read the Wants and Sales Pages

“American Seal” FURNACE CEMENT

**Roof Cement — Stove Putty
Plumbers Putty**

PAINTS and SPECIALTIES

WILLIAM CONNORS PAINT MFG. CO.
TROY NEW YORK

Established 1852

JAMES L. PERKINS

Western Distributor

140 S. Dearborn St., Chicago, Ill.

**PATTERNS FOR STOVES
AND HEATERS**
THE CLEVELAND CASTINGS PATTERN COMPANY
CLEVELAND, OHIO

PATTERNS
FOR STOVES AND HEATERS FIRST-CLASS
IN WOOD and IRON
VEDDER PATTERN WORKS ESTABLISHED 1835 TROY, N. Y.

**IRON AND WOOD
STOVE PATTERNS**
QUINCY PATTERN COMPANY
QUINCY, ILLINOIS

MONARCH FURNACES



LIKE A GIANT CARBURETOR

— the MONARCH
FURNACE converts
fuel into warmth in the
home.

The mammoth Feed Section is so designed that it blends the air and gasses in the proper mixture, giving

Maximum Radiation with
Definite Fuel Economy.

Equipped, also, with large double doors that make it so easy to feed.

These points (and many others) make it easy to sell to your customers.

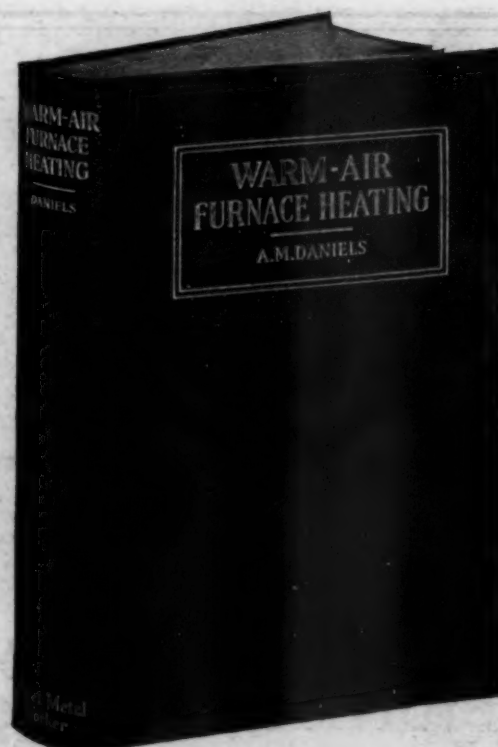
Write us for our 1928 Dealers'
Proposition.

**THE FOREST CITY-WALWORTH RUN
FOUNDRIES CO.**

1220 Main Avenue

Cleveland, Ohio

Also Manufacturers of the Famous Niagara Furnaces



Here is the book they are all talking about—

Just off the Press—Now ready for you

IT IS the book that you have been asking for—a book on Warm Air Furnace Heating that is **UP-TO-DATE**—a book that covers every phase of the subject giving exact data based on research work.

Written by A. M. Daniels.

Here is the book that will enable both the experienced furnace man and the student to obtain a working knowledge of up-to-date scientific warm air furnace heating.

It covers the subject completely.

Many tables are included and some big labor savers in calculating pipe sizes—also many diagrams.

450 pages, 7x9 inches

*Bound in semi-flexible imitation leather—
Stamped in gold—*

PRICE \$5.00 POSTPAID

Send in your order today

AMERICAN ARTISAN,
620 So. Michigan Ave., Chicago, Ill.

Enclosed find \$5.00 for which send me WARM AIR FURNACE HEATING by A. M. DANIELS.
10% discount allowed on book and new or renewal subscription if ordered together.

Name.....

Street Number.....

Town..... State.....

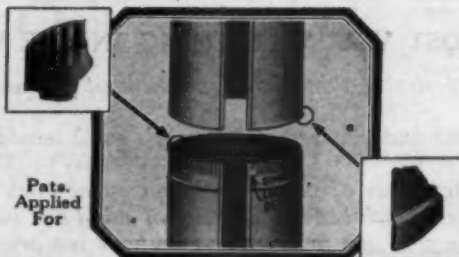
When writing mention AMERICAN ARTISAN—Thank you!



Consult It Now!

HOW does your stock look? How are you fixed for Spring business? Why not check up now and give your stock a thorough going over? Figure your immediate requirements and then add to it a sufficient number of the individual items to take care of any possible demand this Spring.

The *Big Idea* is this: Don't be found wanting in stock or service when business starts coming your way this Spring. Be ready to handle your share and feel confident in going after it that you are in a position to give the best in service—no last-minute delays due to shortages — no lost jobs — no dissatisfied customers.



Pat.
Applied
For

LAMNECK

SIMPLIFIED
PIPE AND
FITTINGS

Consult the LAMNECK Reminder List now. Check your stock against it and shoot your order to us at once.

REMEMBER. We have always urged comparison of our products with any other on the market as proof of our claims for LAMNECK products. And now, *Don't Forget* we are giving the new LAMEDGE JIFFY-JOINT feature in addition. This feature, illustrated on the left is standard on all LAMNECK round tin pipe and on the round end of all tin fittings at no-increase in price. The W. E. Lamneck

Company,
416-432 Dublin
Avenue,
Columbus,
Ohio

THE W. E. LAMNECK COMPANY, 416-432 Dublin Avenue, Columbus, Ohio.

Gentlemen:

Without obligation, please send me ☐ Catalog ☐ Latest Discount Sheet ☐ Sample_____

Name_____

Address_____

When writing mention *AMERICAN ARTISAN*—Thank you!

Founded 1880

Published to Promote
Better
Warm Air Heating
and
Sheet Metal Work

American Artisan

The Warm Air Heating and Sheet Metal Journal

Yearly Subscription
Price:
United States\$2.00
Canada\$3.00
Foreign\$4.00

Published EVERY SATURDAY at 620 South Michigan Avenue, Chicago

ADVERTISING AND EDITORIAL STAFF

Etta Cohn

Franklin Butler

G. J. Duerr

J. F. Johnson

Chas. E. Kennedy

Frank McElwain

Eastern Representatives: M. M. Dwinell, J. S. Lovingham, 156 Fifth Avenue, New York City

Vol. 95, No. 12

CHICAGO, MARCH 24, 1928

\$2.00 Per Year

Table of Contents

	Page		Page
Sheet Metal Department.....	149 to 156	Warm Air Heating and Ventilating Department.....	158 to 165
Green Bay, Wisconsin, Vocational School Doing Good Work.....	149	Warm Air Versus Hot Air, by Professor V. S. Day.....	158
Construction of Round Tapering Angled Hop- per Pattern an Unusual Problem, by O. W. Kothe, Principal St. Louis Technical Institute	150	Ventilating Farm Buildings, by N. A. Lichty	159
Indianapolis Heating Men Consider Feasibility of Standard Heating Contract.....	151	Why Large Volume Operators Can Underbid Small Furnace Men.....	160
Opportunity, by Harry S. Rogers.....	152	Increased Cost of Distributing Goods Threat- ens to Offset Economies in Manufacture...	163
Random Notes and Sketches, by Sidney Arnold	157	Buffalo Furnace Installers Making Progress Which Before Organization Was Impossible	165
		Markets	166
		Sentiment in Steel Industry Is Cheerful.....	166

THE MOST VALUABLE THING IN THE WORLD

I am the most desirable thing in life. Without me no one can be healthy, happy or useful.

The hidden wealth and vast resources of this earth would have no value without me.

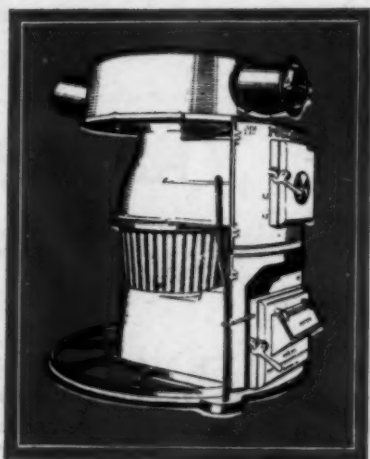
I am the great developer of man. No other agency has called forth so many of his hidden treasures, developed more power of mind and body than I have.

Men and women who try to get along without me are characterless, selfish, undeveloped, useless and unprofitable members of society. I am behind every fortune, every art and science, every achievement, every triumph of man.

Rich men and poor men alike often try to find substitutes for me, hoping thereby to secure a larger measure of happiness, peace, and satisfaction, but they are always bitterly disappointed. Instead of gain, every substitute for me brings them infinite loss.

As the creator is greater than the creature, so I am greater than wealth, power, fame, learning, or any other acquired possession or quality of man, because I am the source through which he acquired them.

I am—Work.



The Portage Furnace
(XXth Century Built)
has both price and
quality appeal

What About the Contractors and the Real Estate Boys?

XXth Century Dealers get this big volume of business because they have what these builders want.

QUALITY

XXth Century Cast or Steel Hot Blast Furnaces—as fine as money can buy.

**QUALITY
at a price**

Portage Furnace (XXth Century Built) is hard to beat when builders want both quality and price.

AND

Many other strong features including the XXth Century Patented Overhead System of Heating, XXth Century Auxiliary Gas Burners, Gas Furnaces, etc.

ALSO

Appealing advertising to interest prospects and a proven Time Payment Plan to enable them to buy.

*Take this important step today. Write for the complete
XXth Century Dealer Proposition.*

**The XXth Century
H. & V. Company
Akron, Ohio**

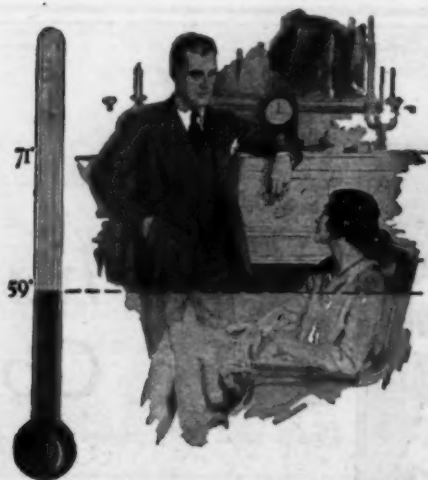
"Manufacturers of fine furnaces for 34 years"

THE XXTH CENTURY H. & V. CO.
Akron, Ohio

Without obligation, please provide me
with the complete XXth Century Dealer Proposition

.....
.....
.....
.....
.....

A. A. 3-24-28



FRIGID Zones! Torrid Zones! Both in the same room—at the same time. Plenty of heat down in their good warm air furnace—but not enough circulation to and through the rooms above. It's wintry near the window—warm near the wall. Heads are hot—feet frigid. Children live on chilly floors.

That's the basic idea of our national advertising campaign, now running in the *Saturday Evening*

Post. The picture above is flashing this message to millions, April 21st. Another picture and ad. told the same story on March 17th. Others will follow.

It's a big idea—dramatic—truthful. It is selling the warm air and forced air ideas to the whole nation. Learn all about it. Send for proofs of these ads., and our new book—"Running Warm and Cool Air." Strike while the iron is hot—lie up to this campaign!

Straws which show how the Air's blowing

THE other day a man walked up the stairs to our office simply because he read the sign "Warm Air Furnace Fan" on our building. He had a furnace. He wanted a fan. He said—after investigating, "I've never been able to warm my bathroom. With this fan I can do it. It's just what I've been looking for for years."



THE other day we counted up the number of furnace manufacturers who had expressed themselves as desirous of co-operating with us and we found that there were just 116 of them. This is very gratifying to us and we hope to record a still greater number.



JUST the same, we are tickled. We are thankful. We are appreciative. We love the way all the good folks of the splendid warm air furnace industry are going after the new markets opened to them by Forced Air.



THE other day we opened the mail and found sixteen photographs of some of the most beautiful homes you ever saw and they were sent by a furnace man in Indianapolis as evidence of his first season's crop from the new "Forced Air" market. "Fan Facts," next issue, will show these houses. Write if you want a copy. It will do your heart good to see them. Maybe they will suggest some prospects to you.

AND the other day we received proofs of our March and April advertisements in the *Saturday Evening Post*. They look good to us. They boost the warm air furnace as much as they boost our product. But that's the way we want them to do. It's the only way you can really sell "Forced Air."



YOU'LL like the new thought "Running Warm and Cool Air" featured by our national advertising. It's a warm one or a cool one—whichever you like. It will grow on you as you think it over. It belongs to the age. You'll tumble to it quickly and want to hustle right out and sell "Running Warm and Cool Air" because it's one of those ideas that gets over quick. You can use it without restriction.



THE other day the mails brought us more kind words, more orders for fans and more requests for engineering layout suggestions than ever before at this time of year. So we thank you—and you'll find us ready to help.

THE WARM AIR FURNACE FAN CO.

6521 Cedar Ave., Cleveland, Ohio

CHICAGO

R. O. Brannan

64 West Randolph Street

KANSAS CITY, MO.

F. H. Mason, Western Sales Manager

1011 Pioneer Trust Building

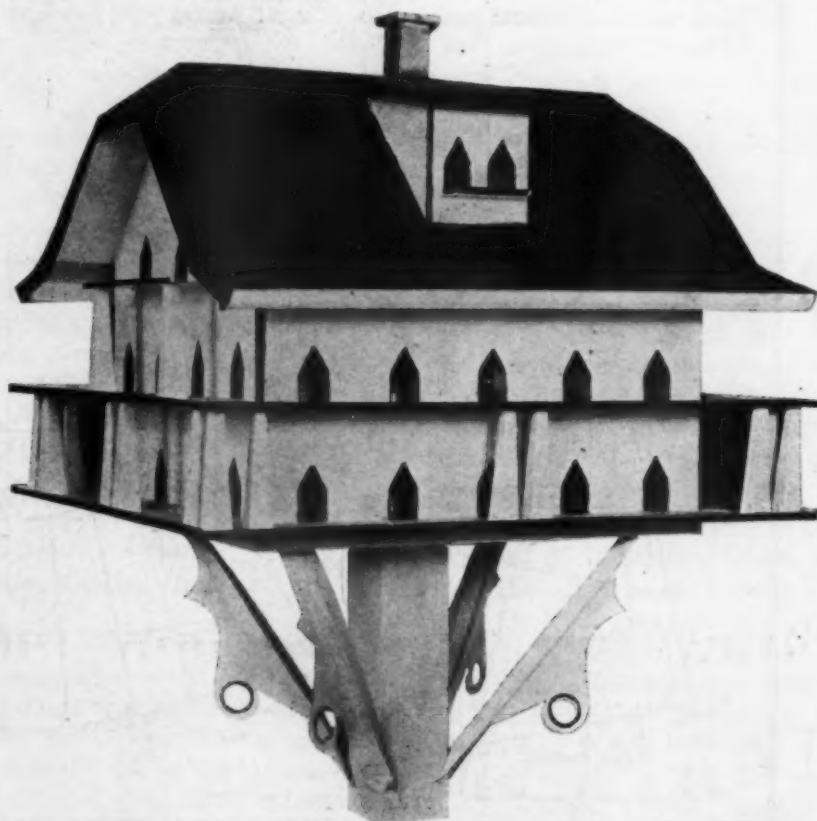


Vol. 95

CHICAGO, MARCH 24, 1928

No. 12.

GREEN BAY, WISCONSIN, VOCATIONAL SCHOOL DOING GOOD WORK



Forty-Six Room Bird House Constructed of Sheet Metal by Students of the Green Bay, Wisconsin Vocational School

THE need for highly skilled workers was never greater in the sheet metal field than at the present time, a condition which has been brought about by vastly increased uses to which sheet metal in its various forms is being put and by the immigration restrictions that have been in force during the present decade. Therefore considerable interest has developed concerning the training of boys in the sheet metal trades, and schools for the accomplishment of this training work have come into existence in all parts of the country.

At Green Bay, Wisconsin, the Green Bay Vocational School is doing an excellent work in supplying the Wisconsin sheet metal contractors with some of the skilled workmen they require. At this school the boys are thoroughly grounded in the fundamentals of design, layout, cutting, forming, assembling of sheet metal work.

The accompanying illustration is that of a sheet metal martin house

which was made by the boys in the Green Bay Vocational School. The house contains 46 rooms, is over four feet high and three by four feet square. It weighs about 125 pounds. It was designed to give the boys experience in the type of work with which they will later come into contact out on the actual job.

These boys make all manner of sheet metal objects, as a glance at the walls of the sheet metal shop at the school will show. There are fishing tackle boxes, funnels, pails, skylights, ventilators, cornices, ornamental trimmings and furnace fittings, all constructed with the especial object of giving the boys practice in all kinds of layouts.

The school is also equipped with a 22-inch firepot furnace on which

the boys work. This furnace the boys set and reset many times and under all kinds of conditions, the pipe and fittings being made by the boys and assembled by them just as though they were actually out on a job and doing the work for a contractor.

The shop of the Green Bay Vocational School is quite large and fully equipped with the latest machinery and tools. The sheet metal class consists of about 50 or 60 boys ranging in age from 14 to 18 years. These boys are full time students. Then there are some older boys that are already apprentices in the shops who spend one day a week getting instruction on the more complicated problems met with in their work.

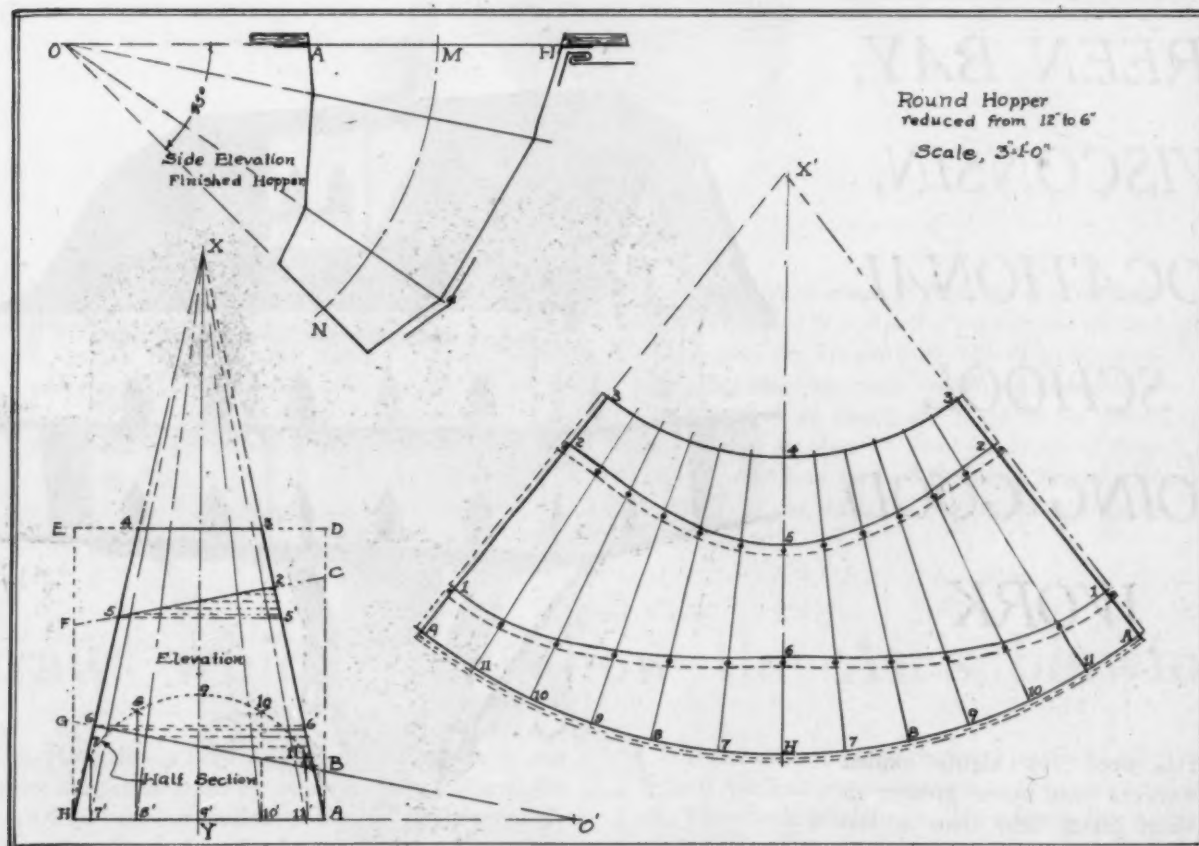
The school also has an evening class in pattern layout and shop

practice problems. This class is attended by journeyman sheet metal workers who wish to increase their knowledge of the problems and solutions with which they come into daily contact. The class meets two

nights a week and is attended by some 16 or 20 sheet metal workers.

"Sheet metal shops in Wisconsin are eager to get boys from our school," says F. W. Thorp, sheet metal instructor at the school, "be-

cause they are so much better fitted to enter the shop with some understanding of what they are to do than are the boys that have had no training at all and the work is entirely new."



Patterns for a Round Tapering Angled Hopper

Construction of Round Tapering Angled Hopper Pattern an Unusual Problem

*Development Requires Radial
Line Method for Completion*

By O. W. KOTHE, Principal St. Louis Technical Institute

THE problem, illustrating an example in radial line development, is a round hopper reduced from 12 inches to 6 inches and the planes of ends making an angle of 45 degrees with each other. This is another of Mr. Markley's problems, and his instructions are as follows:

Selecting a center O and assuming a radius O M, strike an arc M N. Divide arc M N into four equal parts, and draw lines from O through the first and third division

points, as shown. Take length of line O H and locate at O' H. Let H A on H O' equal diameter of inlet of hopper. Erect perpendiculars H E and A D at H and A, respectively, and bisect H A at Y. Erect perpendicular Y X and step off the spaces shown at M N from Y toward X.

From O' extend a straight line through the first point on center line Y X to G. Now the line G B is the miter line extended. Take the

length G H and step it off twice from G to F to E and from B to C equal to H F. Join C F with a straight line. C D will equal A B.

Draw D E and lay off the diameter of mouth of hopper as 3-4. Draw straight lines from H and A through 4 and 3, respectively, to X. Using Y as a center, describe a half section of base and divide semicircle into six equal parts. From these points of division drop perpendiculars (not shown) to locate

points 7', 8', 10' and 11'.

From these points draw straight lines to apex x. From the points at which these fore-shortened radial lines intersect miter lines 1-6 and 2-5 project horizontal lines to slant height A3. These lengths on XA will give the true lengths of segments of radial lines x-7', x8', etc.

Now, it is possible to complete side elevation. The angle MON is constructed at an angle of 45 degrees. Using N as a center, lay off the diameter of small end of hopper on line ON and on the miter lines lay off the lengths of 2-5 and 1-6, respectively. Draw the lines representing the throat and heel of hopper. Taxing x' as a center and XH as a radius, strike arc A-A.

Drop a perpendicular from x' through arc AA, locating point H. From H to the left and right step off spaces H-7, 7-8, 8-9, 9-10, 10-11 and 11-A from half section of inlet. From these points thus located draw lines to X'. Using X' as a center and X4 as a radius, describe arc 3-3. Now the lengths from X2 to X5' on slant height XA must be transferred to radial lines X'-A, X'-N, X'-10, X'-9, X'-8 and X'-7 on each side of center and X'-5 at center from X' in pattern, then a smooth curve is used to construct curve 1-6-1. The dotted curves show the amount of metal that must be added to large end of each member to allow for laps on the installation pattern.

Indianapolis Heating Men Consider Feasibility of Standard Heating Contract

Homer Selch Elected President—Discussion of Cost of Estimating Carried Over

THE annual election of officers of the Indianapolis Sheet Metal and Warm Air Heating Contractors' Association was one of the important features of the meeting of that association held March 14. The officers are as follows: President, Homer Selch; Vice President, Charles M. Sigmon; Secretary, Harry Peterson; Treasurer, Michael Class.

The feasibility of a standard form of contract for warm air heating system installers was brought under discussion, led by Brant C. Downey of the Central Lien Company, Indianapolis. Copies of tentative contract forms were distributed to the members in attendance, in order that the discussion might be more intelligently carried on. One striking feature of the contract called to the attention of members was that with the contract the owner signifies acceptance of the job in writing unless complaint is made within five days after completion.

This feature, Mr. Downey explained, will take care of one of the troublesome legal phases of the contract in case action is necessary to

collect. Mr. Downey also suggested an addition of 10 per cent to the contract price of the job at the outset, then if payment is not made promptly this added amount will take care of any normal collection charges to which the contractor is put. In case payment is made

promptly the 10 per cent could easily be refunded in the form of a discount for payment within 15 or 20 days. Mr. Downey also stated that the company he represents would be willing to carry the paper of the furnace men on that basis, making the full purchase price of the furnace available to the contractor as soon as the job is completed.

The question was raised as to the attitude of the public toward a contract of this kind. The forthcoming answer was to the effect that the problem is one of public education. If the public is made to view such contracts as the usual thing, they will accept it; if they are given any reason to believe that such contracts are out of the ordinary course of routine, they will object. The adoption of such a contract by the association will go a long way toward solving the problem.

The time designated for the discussion of estimating, sub-head, "Overhead," division, "Cost of Estimating," was somewhat infringed upon by the election. It was thought best only to touch upon the subject in hand, giving the membership an opportunity to turn the matter over in their minds for the next two weeks, when further discussion would be possible. It was brought out, however, that the cost of estimating is an overhead item and that it must be paid for; furthermore, that the estimating cost of jobs lost must be paid for by the jobs obtained. Having covered the general idea of the cost of estimating and its application to overhead, it was planned to bring out at the next meeting definite figures from the various members as to the actual cost of estimating and the percentage which this cost figures, based on both the entire overhead and on the volume of estimated work obtained and produced.

The Question box brought out the question, "Can an organization of one hundred members operate successfully when there are three hundred contractors not in the organization?"

Chas. Sigmon brought out the fact that we can all learn something from



Homer Selch

each other, no matter what outsiders are doing.

W. S. Waters explained that an organized minority was always able to control the situation.

Walter Class stated that the Indianapolis organization were going ahead and procure the benefits of the organization, no matter how small or how large the group was.

James A. Thomas said that, while we now have a strong organization and a good personnel, there were many of the outsiders who had indi-

cated their intention of joining, and it was only a question of time until our association dominated the situation, both as to numbers and as to influence. Jack Pope called attention to the fact that, while our organization might not include a considerable number of contractors, it did include the most influential of the sheet metal and furnace trade and would properly exercise a dominant influence.

The time having run over somewhat, President Selch called for a

motion to adjourn, which was put and passed, but the meeting continued informally for some time thereafter, the individual members being interested in the points discussed and preferring to remain while they were covered more thoroughly.

After the meeting President Selch called a meeting of the officers to go into the matter of committee appointments. He expects to have these ready for announcement by the next regular meeting.

OPPORTUNITY

By HARRY S. ROGERS*

THERE is a tide in the affairs of men which, when taken at its flood, leads on to fortune. This tide is opportunity and the time of the flood is at its flow.

There is a story taken from life that is told as follows:

"Lazyman, Contentedman and Busyman lived together in the same house. One day, when only Lazyman and Contentedman were at home, Opportunity knocked. As Lazyman made not the slightest move to go to the door, Contentedman went and opened it.

"I am Opportunity," said the visitor, "and I have something very wonderful for you."

"Lazyman yawned and said nothing. Contentedman courteously explained that he was not interested, for the very good reason that he had everything he wanted.

"I believe Busyman also lives here," said Opportunity. "Where is he? I know he would be glad to see me."

"Indeed he would, but he's out. He's always busy running around. You're not the first Opportunity that he's missed. Opportunities have been knocking here regularly for years, but he's never at home. I tell him it doesn't pay to be so busy."

Opportunity walked away with dejected mien.

But who or what is this Opportunity?

Opportunity is defined as a fit or convenient time or place favorable for executing a purpose and also as a suitable combination of conditions for executing a purpose. With this extremely broad and generous foundation let it be seen how this op-

portunity applies to the sheet steel industry.

What Has Industry Done?

It is not the intention to burden you with statistics but there are a few facts shown on the chart entitled "Relation of Shipments of Sheet Steel to Total Capacity," which command the attention of the user of sheet steel and his opportunity.

The record starts in the year 1922 with a total tonnage capacity of 4,560,000 tons, of which 73 per cent was productive capacity. The capacity has increased yearly until in 1927 when it increased a total of 23.1 per cent over 1922, it is 5,616,000 tons, of which 82 per cent was productive capacity. The important factor to note in this consideration of opportunity is that the productive capacity or in other words the amount of sheet steel actually used and consumed in 1927 was 4,370,000 tons or just a trifle under the total capacity in 1922—just five years ago—if all the mills were producing 100 per cent capacity.

Also note that in 1926 with only a four-year period intervening the consumed tonnage, namely, 4,700,000 tons, was greater than the total capacity in 1922. There is only one important interpretation of this chart, namely, somebody is using this the yearly tonnage production of sheet steel and also it is growing exceedingly fast. This condi-

tion invites the question, "Are you utilizing your opportunity to get your share of this tide of business prosperity?" It certainly cannot be denied that sheet steel is being made, sold and consumed in quantities larger than ever before. Compare the volume of your business in 1922 with 1927. Does your balance sheet show any increase whatever?

The Sheet Metal Trades Personnel

The latest report of the Sheet Metal International Association of Union workmen at its convention in Atlantic City, May, 1927, gives a total of 441 local unions with a membership of 23,859 workers. There are roughly twice this number or about 50,000 non-union workers of sheet metal in the whole United States. There are about 2,000 members in the National Association of Sheet Metal Contractors and, according to the latest available figures by Polk, there are 11,395 sheet metal contractors in the United States and only 15 per cent of the total are members of the national association.

These figures are extremely important when it is considered that the journeyman pays about \$50.00 per year, on the average, to his union for the privilege of working, while the sheet metal contractor pays only \$17.00 on the average to his total national, state and local

*Address by Harry S. Rogers, Sheet Steel Trade Extension Committee, delivered before the members of the Iowa Sheet Metal Contractors' Association in convention at Ames, Iowa, March 15, 16, 1928.

associations to have these associations work in his interest for more sheet metal work at better profits. In other words, the journeyman pays about 3 times as much dues as the master contractor, and yet the master contractor expects national results for a more favorable and more profitable business at an average cost to him of about four and one-half cents per day in his total association dues.

It has often been said that the way to a man's heart is through his stomach. Similarly the ap-

strew debris all over the place. The uncertainty of what such a competitor will do in the lack of knowledge, for example, of his costs, keeps us constantly concerned." So, whenever there is a trade association, or a community group which we feel is doing real work in breaking down economic illiteracy and making our competitors more intelligent, we are eager to get in and lend our support in time, work and money. That is one reason for America's famed teamwork in business. Not fear alone, but an en-

general movement, some of which are the National Warm Air Heating and Ventilating Association, The National Association of Sheet Metal Contractors, The Western Air Furnace & Supply Association, the American Zinc Institute, the Copper and Brass Research Association and Oil Heat Institute. These efforts are reported to the trade through the hearty support of the trade papers, such as the AMERICAN ARTISAN, Furnaces and Sheet Metals, Sheet Metal Worker, Iron Age, Iron Trade Review, National Sheet Metal Contractor and others.

Why Help Is Needed

The building industry was mentioned a while ago in connection with the tonnage production. What of the part in this building industry with which you are in daily contact, do you men, representing the Iowa State Association of Sheet Metal Contractors, as well as other contractors in other state associations, take?

Given the building erected today as contrasted with the building erected fifteen, twenty or more years ago, it will be found that the amount of sheet steel entering this building in 1927 as a part of the structure, excluding the household equipment is decidedly smaller. Why the change? Why is help needed? The first and probably strongest answer to the change is the influence of those organized efforts in back of competitive materials.

This influence comes from remote causes which, on the surface or at first glance, are perfectly harmless and innocent. What of their after effects when once these influences become matured in the building codes of your cities and state? The answer is perfectly plain, at least to us in our office in the Department of Building Trades Extension, where such conditions are analyzed. The sheet metal contractor never sees the code; the owners or most of them for whom he does work don't know the function of a building code nor its prohibiting characteristics.



The Waterloo, Iowa, Delegation Attending the Iowa Sheet Metal Contractors' Conventions at Ames, Chaperoned by W. C. Markle, National Secretary, and Ray Pauley.

proach to the financial success of his business is through the price he pays for the personal contact with his competitor. This was aptly presented in the conversation quoted in the March, 1928, issue of Nation's Business, wherein the president of a great electric corporation was asked, "Why do you join so many business organizations? You are big enough to maintain your own research laboratories, your legislative bureaus and the hundred and one things that these groups carry on for their members. Why do you do it?"

The president hesitated only a moment, then he replied: "The little mouse which strikes fear into the heart of even the biggest corporation elephant is ignorant competition—the greatest hazard is what an unintelligent competitor may do. He has it in his power to

lightened selfishness; a generosity on the part of the big fellow to help the other to learn the fine strategy of the game. We still have among us those men who, because human nature is what it is, have square corners and just can't work with the other fellows.

What Are the Helps By the Industry?

True it is, the sheet steel industry is offering helps in advertising, publicity and merchandising the same as other industries for their respective products. With a small membership of less than thirty, the Sheet Steel Trade Extension Committee is spending hundreds of thousands of dollars to create a broader and better market for its product, namely, sheet steel. For the sheet metal trade as a whole, there are many influential organizations and institutions cooperating in this same

Take a typical case of an owner who desires to erect a building on a business street in any of the medium sized cities such that this building contains two store rooms on the first floor; between these store rooms a hallway leading to the second and third floors above, which serve as residence quarters to a total of four families. This owner further reasons that as the rear of this building faces on a secondary street or alley he will be able

tilate the building through galvanized sheet steel ventilating flues or stacks, but the code requires these stacks to be of reinforced concrete or masonry throughout.

The owner thought of the convenience to the patrons of the stores on rainy days, so provision was made for a canopy or marquee to extend out to the curb line. But alas, the building code restricted this marquee to two-thirds of the width of the sidewalk and prohib-

buildings exceeding 400 square feet in area, except that they be not closer than ten feet to any lot line. Since the size of this property does not permit this teen-foot clearance on the sides and rear, the owner must go to some other type of construction and materials at a great increase of cost and yearly interest charges or sacrifice the anticipated revenue entirely.

These causes of dissatisfaction to the owner, of loss of sheet steel business to the sheet metal contractor on this particular building and of the loss of future business on all such or similar buildings may not exist in just this particular form in one code, yet again they may, together with other more drastic prohibitions. How they got there, the average sheet metal contractor does not know. He cares now to have them removed because they affect his profits. How to remove them or rather bring enough influence to bear, whether this influence be purely political or backed up by scientific proof, that is the next problem that few sheet metal contractors know how to start, let alone finish.

How Not to Remove Legislative Obstacles

An example of one city in this state of Iowa, Burlington, will serve the purpose of showing the opportunity for the sheet metal contractor to help himself in this tide towards more profits from his business. In November, 1927, our Director of Building Trades Extension wrote to the Building Inspector of that city, requesting the status on the code. This letter was not returned nor an acknowledgment sent. In February, 1928, a letter was sent to a sheet metal contractor in Burlington, which letter contained the following facts:

(1) We understand that a new building code is being prepared for your city.

(2) The desire to have the new code contain provisions which will require the greatest amount of sheet metal work on buildings.

(3) We stand ready to aid with our expert service, but need first some help from you.

(4) Will you undertake, in the interest of your own business, either to forward us for quick examination and prompt return, a copy of the proposed code or else at this time obtain for us the information as to who is the person in charge of its



Left to Right—J. G. Gilley, President Iowa Travelers' Auxiliary; Ray Pauley, Harry Rogers, Sheet Steel Trade Extension Committee; W. C. Markle Secretary National Association Sheet Metal Contractors; John L. Wright, Waterloo, President Iowa Sheet Metal Contractors' Association.

to secure more revenue by erecting garages to care for the two business trucks, belonging to the stores, and the four family pleasure cars.

The owner has the money to go ahead with this project. The plans and specifications are prepared according to the owner's desires. But what happens?

He desired to use steel ceilings in the store rooms, but to his amazement he discovers that the building code requires a one-hour fire resistance for all store ceilings under dwellings and for the cellar ceilings in multi-family houses, restaurants and store buildings.

The owner desired a warm air heating system, but likewise the code requires that two inches of concrete or four inches of brick wall encase all ducts carrying heated air. He further intended to ven-

ited its length to not more than one-half of the width of the front of the store building.

This owner further thought of his tenants on these rainy days, so he provided a respectable sheet steel cornice to protect the open windows during light showers of rain, but again he met opposition in that the code required that no cornice project more than 12 inches beyond the street building line.

So much for the grief on the building itself. Surely the garages would escape such penalties. A two-car garage normally occupies a space 20 feet by 20 feet or 400 square feet of area.

Here this owner desired to erect three such units of double garages built of galvanized sheet steel. But woe to the owner, as the code prohibits the erection of steel covered

preparations, and how soon it is expected to be ready?

This letter was not returned nor was any response received.

A same letter was sent about two weeks later to another firm of sheet metal contractors in Burlington, to which a reply was immediately received, reading, "The Code is already prepared and adopted by the City Council. Sorry we did not receive your communication sooner, as we would have been pleased to send it to you for inspection."

Gentlemen, the opportunity for our office to serve the best interests of the sheet metal trade in the city of Burlington is passed for the present at least. Recall now, if you will, the figures quoted a while ago, namely, less than two thousand organized master sheet metal contractors in the national association and also the remark of the president of the electric corporation, that whenever there is a trade association or a community group doing real work, he is eager to lend his support in time, work and money, then it becomes evident that each master sheet metal contractor wields a powerful influence for the profitable upbuilding of his own business but not until he has become possessed of the broad business principles of cooperation, such as the president of the electric corporation had.

Perhaps another example of this influence governing the sheet metal business through building codes and fire law restrictions may well be cited, except that attention is here drawn to the effects favorable to sheet steel. In February, 1928, our office received a letter reading as follows:

"We wish to make a connection with a manufacturer to furnish us with galvanized roofing and metal shingles.

"We have been in business here for the past sixteen years and have been selling pine, cypress and red cedar shingles, but we find that it is getting to the point that practically all towns and cities have outlawed wooden shingles, and we are in position to sell a lot of metal roofing if we can get the proper connections on it.

"If you would be interested in a proposition of this kind, we will thank you to let us hear from you by return mail, and we will go into the matter with you. We might state, in this connection, that we have sold around twenty million red cedar shingles in the past six months. This will give you an idea as to what

you might expect in the way of metal business from us, as we could have sold several times this amount of metal roofing had we had it."

Gentlemen, I ask you the question, is there still a potential business to be enjoyed by the sheet metal contractor in the re-roofing of present existing houses?

Your speaker can cite you of one sheet metal contractor in a medium sized town in the midwest with whom he talked about two months ago. He said there was too much competition with no profit in it for the sheet metal work on new jobs. He concentrated on the re-roofing of old residences in which he was able to have things more his own way and at his own price. Three years ago he used less than four carloads of roofing. In 1927 he applied 24 carloads of double standing seam roll roofing at a most attractive profit per square.

Again I repeat the question in another form, "Is there still an opportunity for the aggressive sheet metal contractor business man?"

Are Opportunities Ahead?

As in history for the past generation, so it is true for the present that there are countless examples of opportunities that lie at our very feet rather than in distant lands. Contact with the sheet steel industry affirms the contention, just the same as did Russell H. Conwell, in his world famous lecture entitled "Acres of Diamonds," that there are profitable opportunities in the sheet steel business now.

As to the opportunities ahead, Holy Scripture admonishes us "First cast out the beam that is in thine own eye and then thou shalt see clearly to cast out the mote from thy brother's eye." With clear vision the future will take care of itself.

As a concluding thought for you members of this Iowa Sheet Metal Contractors' Association, as well as all other state or local associations, may you be reminded, first, the artificer in metals is as old as our civilization; second, in the early stages of our civilization man lived unto himself alone, consuming that which he produced; third, modern civilization brings the corners of the

world to man's very doorstep, so that he depends upon the results of other men's efforts; fourth, modern business demands that you as sheet metal contractors must serve others—namely, your customers—before you make a profit; fifth, the present-day trend of business demands that you cooperate in time, effort and money with others in your own craft to defend it against the assault of competitive crafts; sixth, that when opportunity knocks at your door to lend expert advice for your own benefit, such as was cited in the case with the Burlington building code, modern business demands action ere it is too late, and finally that he who gives of his time, his money and his unselfish efforts shall reap the rewards of opportunity.

Gentlemen, may it never be said of you as master sheet metal contractors and business men.

Isn't opportunity knocking at your door? Probably.

And are you not going to answer it? I? Of course not.

What do you think the servants are for?

W. F. Watson Becomes Head of Metal Lath Club of Chicago

W. F. Watson, district manager of the Fireproof Material Division



W. F. Watson

at the Chicago Branch of the Milwaukee Corrugating Company, 4301 South Western Avenue Boulevard, was recently elected president of the Metal Lath Club of Chicago.

The Metal Lath Club is composed of building material men organized for the purpose of bettering conditions in the Chicago district and working with the Chicago Code Committee in preparing the new building code. Another purpose of the club is to assist the Associated Metal Lath Manufacturers in their campaign for better plastering.

Mr. Watson is also a member of the Chicago Builders' Club. He has been in the building material field for twenty-five years, working with both manufacturers and dealers, and during that time he has made a host of friends.

Since the opening of the Chicago branch of the Milwaukee Corrugating Company in 1924, Mr. Watson has been the Chicago District Manager of the Fireproof Material Division.

Long experience has made Mr. Watson an authority in the building material field and he is now in a better position than ever to use his wide experience in serving the Chicago district.

Sheet Metal Consumers' Protective Association Hears Professor Day

The Sheet Metal Consumers' Protective Association held their monthly meeting Monday, March 12th, 1928, at the Marquette Hotel. After the usual routine of business, President F. J. Moran introduced Ben Kolhenschlag, Trustee of the National Association of Sheet Metal Contractors, who in turn introduced the guest and speaker, Professor Vincent S. Day, University of Illinois.

Prof. Day delivered a very interesting and educational lecture on the theory and practice of warm air heating. His lecture was assisted by the use of picture slides which showed the Research Residence, together with charts and data showing the benefits derived by scientific heating, proper installation, etc. A

portion of the time was set aside for a general discussion sponsored by Professor Day, who answered questions involving the problems confronting the members in their everyday experience in furnace installations.

The splendid enthusiasm displayed and the satisfaction gained from Professor Day's address gave the members reason to congratulate the president for having arranged with so interesting a speaker with the assistance of the Furnace Club of St. Louis. The number in attendance was far in excess of the average crowd, the meeting having been attended by contractors not only in St. Louis, but nearby cities, including Alton, St. Charles and Belleville.

Mr. Kolbenschlag has fully recovered from his illness and is again back in the ranks.

A past officer of the Association, S. W. Artis, was taken ill and is now convalescing from a recent operation.

The Association has appointed a Transportation Committee for handling details of travel to the national convention to be held in Cleveland the latter part of May. It is the desire of the committee to have members from the Western states who contemplate attending the national convention, to arrange to come via St. Louis and join the St. Louis delegation.

Two progressive members have moved into new locations. Their places are nicely arranged and well equipped, clean and orderly. A mark of progress is to be credited to Mr. Cavalo of the Grand Sheet Metal Company and Wm. Siewing of the Siewing Sheet Metal Company.

It was previously announced that the Social Club of the Sheet Metal Contractors had again resumed their activity for the coming year with a Washington's Birthday Party.

At 6:30 p. m. thirty-five of the progressive contractors of St. Louis, with their wives and children, assembled at Gevecker Sheet Metal Shop for a 15-mile drive into the

country to Hewitt's Chicken Dinner House. All arrived at about 7:00 o'clock with very healthy appetites and enjoyed a wonderful chicken dinner served in country style. Following the dinner a few remarks were made by our able toastmaster, Herb. Symonds, who then turned the party into a grand bunco and pinochle tournament, with the result that the Gerock family won the majority of the prizes.

The officers wish to announce for the benefit of those who did not attend this party that they can look forward to a good time by reserving the last Thursday of each month, as this is the evening set aside for these social affairs.

Barnes Metal Products Gets Michigan Standard Miter Franchise

The Barnes Metal Products Company, 1531 Kingbury Street, Chicago, has recently been granted a franchise for the manufacture of a Michigan Standard Miter, which is sponsored by the Michigan Sheet Metal and Roofing Contractors' Association. Following investigation of this company's products, the board of directors of the latter organization decided that this firm is worthy of this connection.

This makes the Michigan Standard line of piping products complete, and the board expects co-operation and support from every association member.

Iowa Travelers' Auxiliary Reduces Dues to One Dollar

The Iowa Travelers' Auxiliary, in session at Ames, Thursday, March 15th, voted unanimously to continue as an organized body, but to reduce annual dues to \$1 per year.

Officers elected for the year 1928 were:

President, J. G. Gilley, Waterloo.
Vice-President, Norris M. Blanchard, Des Moines.

Secretary, Arthur Lee, Marshalltown.

Treasurer, Etta Cohn, Chicago.
Directors, Louis Roos, F. J. Kiesel and E. W. Hunter.

Random Notes and Sketches

By Sidney Arnold

"The essence of humor is sensibility; warm, tender fellow-feeling with all forms of existence."—Carlyle.

Edward Williger, Edward Williger Sheet Metal Works, 364 West Superior Street, Chicago, was a visitor in our office one day this week. Mr. Williger had mislaid a copy of *AMERICAN ARTISAN* and came in to replace it with another in order that his file would be complete and unbroken.

* * *

We were also honored with a visit one day recently from Frank E. Mehrings, manager of the Meyer Furnace Company, Peoria, Illinois, and Max Baugh, sales representative of that same company, who were in town and dropped in to say a few words.

* * *

James Charles Allen sends in the following bit of humor on a Scotch circulation manager: A Scotch circulation manager (I have an idea it is our Mr. McElwain to whom Mr. Allen refers), in replying to a friend who had sent in three subscriptions to his journal in one week said, "Three subscriptions in a week call for a letter instead of a postal card in acknowledgment." The Scotchman, running true to form by sending the letter instead of the three cards, saved one cent in postage.

The letter acknowledging the subscriptions received was sent out under date of February 16 and Mr. Allen's letter was dated February 24. In reply Mr. McElwain says that Mr. Allen had done fairly well, as he had got the joke in the remarkably short span of eight days' time.

* * *

A. A. Glessner, representative of Hart & Cooley Manufacturing Company, sends me a photograph of Rip Van Winkle, famous Texas horned toad that is said to have lived happily for 31 years sealed in the cornerstone of the Courthouse at Eastland, Texas. Art said they had this second Rip Van Winkle

on exhibit at Dallas, Texas, recently and, of course, I believe everything that Art tells me. Thanks a lot, Art. But nevertheless my curiosity is aroused and I am writing to the police department of Dallas to find out what you were drinking in the Lone Star state on your last visit.

* * *

I don't know what Roy Harrison's conduct is when he is around home, but it certainly must be something out of the ordinary, which is, of course, expected in view of the fact that he is a rather unusual sort of a fellow. Anyway, that's the im-



The Roy Harrisons' Youngest

pression one would get after looking at the picture of Roy's baby which he sent me the other day. From the looks of the expression on the baby's face there certainly must have been something of an unusual nature going on. Some baby, Roy! Congratulations. More Rudys will have to be sold now.

* * *

Getting the Pedigree Straight

A gentleman was visiting a lunatic asylum, and while walking in the grounds met a patient, to whom he said: "Well, my good man, how did you get here?"

"It's this way, sir," replied the patient. "I married a widow with a grown-up daughter and my father married that same step-daughter of mine. That made my wife the mother-in-law of her father-in-law,

and my father became my stepson. Then my step-mother, the daughter of my wife, had a son, and that boy, of course, was my brother, because he was my father's son; but he was also the son of my wife's daughter, and therefore her grandson, that making me grandfather of my step-brother. My wife having had a son, my mother-in-law, the stepsister of my son, is also his grandmother, because he is her stepson's child; my father is the brother-in-law of my child, because his stepsister is my wife. I am the brother of my son, who is also the son of my stepgrandmother; I am my wife's brother-in-law; my wife is her own child's aunt; my son is my father's nephew; and I am my own grandfather."

* * *

"Yes," said Dad Ederle at the recent Michigan Sheet Metal convention, "I have had some terrible disappointments, but none stand out over the years like the one that came to me when I was a boy."

"Some terrible shock that fixed itself indelibly in your memory, I suppose?" replied Al Berchbach, Detroit.

"Exactly," said Dad Ederle. "When I was a boy I crawled under a tent to see the circus, and I discovered that it was a revival meeting."

* * *

An absent-minded hardware dealer was walking down the street one day with one foot in the gutter, the other on the pavement. A friend, meeting him, said:

"Good evening, Harper. How are you?"

"I was very well, I thought, but now I don't know what's the matter. For the last ten minutes I've been limping."

* * *

"Did you tell father over the phone we were engaged?" said Ed Gardner of the Joseph Gardner Sheet Metal Works, Indianapolis.

"Yes," said Mabelle, now his wife.

"What did he reply?"

"I'm not sure whether he replied or whether the line was struck by lightning."

WARM AIR VERSUS HOT AIR

FROM A RECENT PAPER
BY PROFESSOR V. S. DAY

THE term warm-air is full of meaning as it emphasizes the value of moderate air temperatures in heating and depreciates the idea of heating by "hot-air." In warm-air heating a large volume of mildly tempered air is circulated through the building, producing an equable temperature not likely to be obtained if high air temperatures and small air volume exist at the points of delivery into the rooms. A temperature of 175 degrees F. at the registers in zero weather should be a maximum. In the Warm Air Heating Research Residence at the University the average register temperature in coldest weather is 135 degrees F. The use of lower delivery temperatures also eliminates many of the old faults of "hot-air" and presents advantages in the way of economy, cleanliness, and improved humidity and atmospheric conditions.

Advantages of Warm Air Heating

Aside from its lower initial cost there are certain advantages in warm air heating over other types of heating:

(a) It is flexible and responsive. No other system will respond to a demand for heat so quickly, nor permit of such prompt adjustment to varying weather conditions.

(b) Circulation of air through the house creates better air conditions, as a large proportion of unbreathed air is being supplied constantly.

(c) Humidity may be obtained and regulated by means inherent to the system.

(d) Very little space is obstructed in the occupied portion of the house, and valuable wall space is not sacrificed.

(e) The responsiveness of the system to proper regulation makes for economy of fuel. This economy characteristic depends on the intelligent care of the operator, regard-

less of the type of heating employed. In the Warm Air Heating Research Residence at the University the house efficiencies are as high as 90 per cent with anthracite coal and coke, and 75 per cent with bituminous coal, indicating that the economy is very good and the waste very low.

(f) The warm air heating system is most "fool-proof." There is nothing to freeze, no air valves nor water line to watch. Heating is accomplished by simply building a fire, without preliminaries, and heating may be stopped by letting the fire go out. There will be no disastrous after effects.

There are, of course, some disadvantages to warm air heating, principally only the use of basement space and the limitations to size and shape of house.

Furnace Casing Important

The casing surrounding the furnace confines the air so that contact with the hot surfaces is produced. This is an important function since close, or wiping contact is desirable; but if the casing is made too small, or choked, the maximum air flow will not be possible. The best size for the casing is therefore a nice point in furnace design.

The casing also serves as a converter, receiving radiant heat energy from the furnace and giving it up to the air stream by rubbing contact. It, therefore, becomes heated and an appreciable portion of the heat may be re-radiated into the basement. Some heat in the basement is desirable, but the casing should be lined to prevent excessive heat discharge to the basement. The experiments have shown that one or two cylindrical sheets of black iron suspended inside the casing and around the castings produce marked increases in efficiency, eight to ten per cent being easily possible. The heat which is released in the basement is beneficial in warming the

floors above, hence perfect insulation of the furnace casing or jacket is not always desirable.

The location of the furnace and the arrangement of pipes and return ducts are inter-dependent. When not forced to another location by special considerations, such as basement partitions, the furnace should be placed near the center of the basement, or should favor the north and west rooms.

Furnace Efficiency and Fuel

Warm Air furnaces, well installed and burning solid fuels, should transmit 60 per cent of the heat of the fuel to the air leaving the furnace top. Higher efficiencies may be obtained with superior fuels and installations. Of the heat of the fuel 90 per cent may be retained within the building, that which is radiated from the smoke-pipe and casing being available for heating the house.

The investigations have shown that highest efficiencies are obtained with fuels of low volatile and low ash content. High heat value does not necessarily go hand in hand with high efficiency, for in burning high volatile coals having high heat values much of the heat value may not be realized on account of the discharge of incompletely burned gases from the chimney. On the other hand the more volatile fuels are responsive to quick firing methods, and with a high volatile Illinois coal it was possible to start a clean fire in the Research Residence, with the house at freezing temperature, and have the air in all rooms warmed to 70 degrees F. in one hour. The problem of fuel selection is not, therefore, easily solved and depends on a number of factors besides cost, such as quick heating, method of firing employed, time interval between firing, elimination of smoke, draft, ash handling and others.—*National Warm Air Heating Bulletin.*

VENTILATING FARM BUILDINGS

By N. A. LICHTY*

IT is my belief that the sheet metal men of this state need talks on "Practical Salesmanship" as well as on technical figures, data, etc., pertaining to the ventilation of farm buildings, or whatever the line of selling may be. Agricultural schools put out bulletins of all kinds, but it is not so easy to acquire real salesmanship that makes your business pay. In my talk I will touch on the subject of "ventilation," and also give a few ideas concerning salesmanship, which I hope will be of benefit to all metal men.

I think there is enough business in the ventilating line to justify sheet metal contractors giving it considerable attention. There have been over a half million small rotating ventilators sold for farm buildings in the last ten years throughout Iowa and surrounding territory. Add to this the steel barn cupolas, metal exhaust flues, intake ventilators, and the countless thousands of metal hog house roof windows.

Who has sold this equipment? The lumber dealer, we say. The margin of profit usually made on the selling of this material is 30 per cent of the selling price. Is there any reason why the sheet metal contractor couldn't be making 20 or 30 per cent on ventilating equipment? None as far as I have been able to see.

You do not have to go many hundreds of miles from home. All of Iowa, eastern Nebraska, eastern South Dakota, southern Minnesota, southern Wisconsin and northern Illinois offer splendid markets. I would say the surrounding territory is ideal.

Here is another advantage for you. Manufacturers of ventilating equipment through competition and a desire to serve, have so carefully developed the making of cupolas,

windows, etc., that they produce a product far beyond what you could ever dream of making. They now use special machines and employ especially trained workmen. Their product is well made, good looking and sells at a low price. In buying this equipment your cost is fixed. When making it your cost is uncertain.

You may have the impression that it is a hard job to figure and estimate gravity ventilating systems—that you must know a lot to be able to ventilate buildings properly. Your impression is wrong, if I may say so. Here are the few things to be remembered.

First, you must know the existing conditions; namely, the size, shape and type of construction of the building to be ventilated. You must also know the maximum and minimum number of animals to be housed in the building as well as the kind of animals.

Second, you must know the exhaust capacity of your ventilator under the conditions in which it will have to function. There are three principal factors determining the amount of air a ventilator will exhaust. The first is the outside wind velocity. The second is the difference between the temperature outside and inside of the building. The third is the height from the ventilator head to the bottom of the floor.

You will have to take into consideration the number of cubic feet of air in the building and the number of cubic feet of air required hourly by the animals housed in the building.

Intake ventilators must be installed of sufficient capacity to create a free circulation without affecting drafts that will cause the animals to catch cold.

Now, I bet you are thinking that what I have just told you is terribly complicated. After you know the requirements, an hour's concentrated study will do the trick and

make everything plain. I speak from experience.

Now, I come to what I would term the foundation of salesmanship. Know your product first. This may be ventilation equipment, eave trough, ducts, or anything else sheet metal. Say to yourself over and over again these three words, "Knowledge is power." Unless you know more about your merchandise than your customer does, and, yes, even your competitors, and show that you know it, then you will lose sales. Know what your iron is made of, where it is made. Know all the little details that we so often think are unimportant. You must be master in your line.

The next logical step, in my mind, after knowing your line, is to sell it. In other words, go after it. It has been said

"All things come to him who will but wait,

But here's one that's slicker:

The fellow who goes after what he wants

Get's it a darn sight quicker."

A big percentage of the ridge roll and corrugated roofing sold today is being sold by the lumber dealers. This, together with the new type of metal roofing, metal garages, etc., *should* be sold by the sheet metal dealers.

You cannot be successful nowadays with your feet propped up on your desk, a cigar in your mouth, and expect customers to walk in. Each community varies and requires different methods of advertising. Anyway, here is a suggestion. You try and sell your business as hard as the concerns who sell you your auto, your truck, or your radio. Draw your own conclusions, if every sheet metal man here would do that.

Every man is a salesman, and I believe every man is capable of making himself a better salesman. The opportunities in the sheet metal industry are greater today than they ever were before, because the sheet

*Address delivered by N. A. Lichty on Ventilation for Farm Buildings at the convention of the Iowa Sheet Metal Contractors' Association convention, held at Ames, Iowa, on March 15 and 16, 1928.

metal men have more cooperation than ever before.

The national association with its slogan and cuts are advertising sheet metals. The Sheet Steel Trade Extension Committee are advertising sheet metals very extensively. All kinds of advertising and selling ideas are available from your supply houses.

New products and new uses for sheet metal are being introduced every day. Why doesn't the sheet metal man learn these new things, remember them and use them in his business the same as doctors, lawyers and insurance men? Your life insurance man will offer you today a dozen new kinds of policies, all of which are attractive. Yet I don't think that the life insurance business has developed a bit faster than the sheet metal business.

If you are a real salesman and know your stuff you can sell ventilating systems, heating plants and all kind of sheet metal products, even in these days of so-called "hard times." If you can sell them, you can secure plenty of efficient men to do the work of installation, and you will make a good profit. Then the rest of the fellows will say, "You're a lucky guy."

We will never accomplish more until we attempt more. We will never have more friends and customers unless we go after them in a spirit of true helpfulness. We are not entitled to more money until we earn it.

There is no greater human achievement than to be useful. A new idea here, a suggestion there, a friendly boost at the right time, a practical plan for increasing sales—these and scores of other methods come to mind for increasing our usefulness when we start thinking about it.

Occasionally we run across a prospect who thinks so much of another sheet metal man that he won't give us a "look-in." The people in that organization have made themselves so useful that he considers them indispensable. Think what it would mean if we could have everybody feeling that way about us! We'd have all the business in our

line corralled as long as we could improve our usefulness and deliver the service to keep us out in front of competition.

Of course, nobody ever gets all of the business, but we can get a much larger percentage than we are obtaining if we stick to the idea of making ourselves more useful than the other fellows, helping our customers by more intensive work in their problem.

In closing, let me emphasize again

that each and every one of you are salesmen. There is plenty of room for improvement in each one of us. Salesmanship is an individual matter. You cannot acquire it for me, nor can I for you. Therefore, know yourself, know your product and set about to sell them both. Your reward will be larger profits, and the means of attaining those things which mean a larger and fuller enjoyment of life for you and your fellowmen.

Why Large Volume Operators Can Underbid Small Furnace Men

*Furnace Cleaning at Low Rate
Used for Advertising Purposes*

I WAS very much interested in the article by G. B. Fadner, Cedar Rapids, Iowa, appearing in the March 3rd issue, and agree with him partly on what he said, as I know conditions in Iowa, says James Charles Allen.

It is not the big shops that are doing the business at a loss. For if that were so, they would not be doing business for long. The real reason that the volume shop can sell a heating system for less than the small operator I learned in the following manner: One of the dealers upon whom I called and to whom I had sold all fittings and registers up to the time of the incident which I am about to relate occurred, said to me as I approached him for an order, "You must give me 20 per cent discount over and above the regular quantity discount."

This I was unable to do, and so the order went to someone else.

Another case of which I know concerned furnaces. The regular price on the 24-inch furnace was \$89.90. This same furnace was offered to a volume dealer for \$68.32. Another volume dealer was buying this same furnace for \$64.73 in carload lots. There would also be the difference in local and carload freight rates, which would amount to an approximate saving of \$4.80 per furnace shipped in carloads. Then how does this work out?

Let us take, for example, the cost of a furnace in an 8-room house, four runs upstairs and four runs to the first floor, with three cold air returns. The stacks and registers in black japan finish would cost regularly \$125, approximately. The furnace cost is \$89.90; freight and drayage, \$15, making the total cost \$229.90. Now consider the prices at which the volume dealer can buy this same material. Furnace, \$68.32; fittings and registers, \$100; freight, \$15, less \$4.80, \$10.20, or \$178.52. The volume dealer can buy his materials for \$51.38 less than the fellow who does not do a volume business.

In case the small dealer is an exceptionally good buyer he might possibly shave the furnace price to \$80.91, in which case the price differential between himself and the volume dealer would be cut to \$42.39. This differential in itself is a good profit and would represent one good reason why the volume dealer can outbid the small operator.

As to the vacuum cleaning of the furnace for \$1.00, this firm may be employing this means of advertising their business and so charge it in their budget. Personally I believe in printer's ink for advertising.

As to the back alley shop. I don't believe the purchaser of the warm air heating system cares where the shop man hangs his hat. The things



"Cobble" Floor Register, Style 80. A cast register with features that save installers time and labor—that make users fully satisfied.



The Famous cast "Cobble" Cold Air Face, Style C. So far ahead of wooden and stamped faces in economy, strength and other features that there is no comparison.



Our latest offering in Baseboard Registers—Style 902 two-piece. This is made in sizes to fit all standard stack-heads made. Also made in one-piece—Style 402.

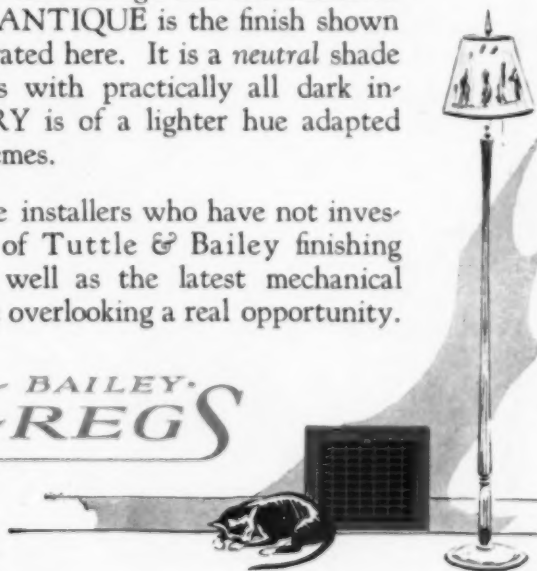
Beauty Takes its Place in Warm Air Registers!

GONE is the day when to be accepted an article required only the quality of usefulness. Today, especially in things which help to make up the home, beauty is often placed even above utility. And, because Tuttle & Bailey Registers so completely embody both features they have constantly gained increased favor with the trade.

The pleasing appearance of T&B Registers and Cold Air Faces is due to their design and the exclusive finishes. TANBO ANTIQUE is the finish shown on the pieces illustrated here. It is a *neutral* shade that happily blends with practically all dark interiors. TANSVORY is of a lighter hue adapted to lighter color schemes.

Dealers and Furnace installers who have not investigated the details of Tuttle & Bailey finishing developments—as well as the latest mechanical improvements—are overlooking a real opportunity.

TUTTLE & BAILEY
SUPER-REGS



TUTTLE & BAILEY MFG CO.

Established 1846

441 LEXINGTON AVE.

NEW YORK CITY

Chicago

Boston

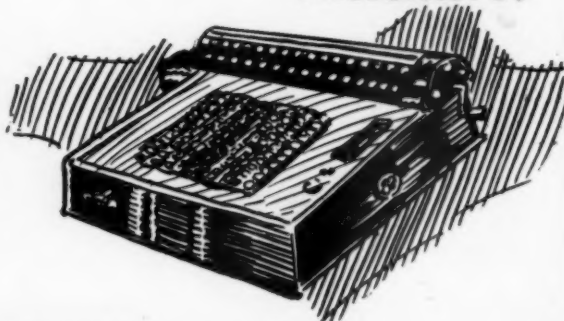
Kansas City

Bridgeburg, Ont.

YESTERDAY~ *The Old Book keeper*



TODAY~ *The Power Calculator*



YESTERDAY~ *The Hand Snips*



TODAY~ *Power does the job Faster, Better, more Accurately with*

THE MIGHTY MIDGET



The old bookkeeper bending over the ledger far into the night is gone forever. The modern office has utilized power even in counting row after row of figures.

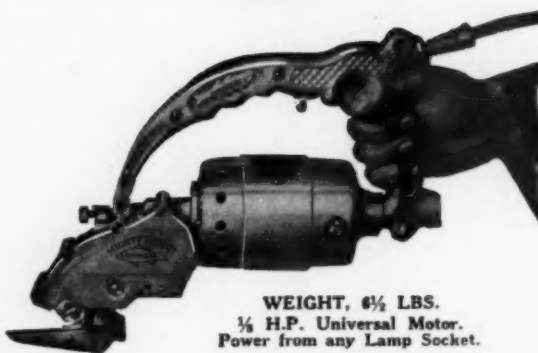
Wherever sheet metal is handled, power also has replaced hand methods. The old fashioned hand snips are too costly in time.

The MIGHTY MIDGET cuts 100% accurate, along straight lines, curves or irregular lines.



Mighty Midget as a Stationary Bench Tool, mounted in Cradle.

Price with 110-volt Universal Motor - \$56.00
Price with 220-volt Universal Motor - \$59.00
Price of Cradle with Yale Lock - - - \$5.00



WEIGHT, 6½ LBS.
⅓ H.P. Universal Motor.
Power from any Lamp Socket.

**Accurate as a Watch—
Strong as a Pile Driver**

Weights only 6½ lbs., but cuts up to 18 U. S. gauge (0.050) sheet iron at a speed of 15 feet per minute. (Minimum Radius 1")

The Unishear line includes many other models in heavier machines for cutting sheets up to ¼-in. boiler plate, all built on the famous Unishear principle. Complete catalogue sent upon request.

The UNISHEAR COMPANY, Inc.

Main Office and Factory: New York, N. Y., 270 Lafayette Street

BRANCHES: Boston, Chicago, Cleveland, Detroit, Milwaukee, Philadelphia, Pittsburgh, San Francisco

that count are quality workmanship, materials and a heating job that will heat in all kinds of weather. Iowa has produced some good furnaces and some good furnace men.

Another point I want to make is, buy your furnaces from your nearest manufacturer. Before the Standard Code was so generally used I found we had to be more careful about selecting the furnace. Some of the furnaces that we used to look at with a question mark give the best results under Standard Code installation.

At a meeting the other day a man got up and with a lot of bluster tried to fasten the parentage of the Standard Code to one manufacturer, as many another has done. Let it be thoroughly understood that the Standard Code in its present form is a product of the research work that has been done at the University of Illinois.

My first recollection of the mention of a code for warm air heating was fourteen years ago when I happened into the shop of the late Harry Hussie in Omaha, Nebraska. Harry had just returned from a furnace job. He said: "Allen, if we only had some simple method of figuring a layout for a warm air heating job." We talked the situation over, discussed it from a B. t. u. basis, and I told him I was using a simple rule of figuring one square inch of warm air pipe area to one square foot of glass area, one square inch of pipe area to ten square feet of exposed wall, one square inch of pipe area to 100 cubic feet of contents. All this for zero outside temperature. For 20 degrees below zero add 1½ inches for each degree and you will have Standard Code.

Harry said: "Some time someone will figure this whole thing out after making actual tests." I told him of work that was then being done in the case of coal, electricity, signal lights, etc., at the University of Illinois. As far as I know, Harry Hussie was the first man to suggest in an open meeting the possibility of working out such a method.

About a year after our talk Harry Hussie began to work for some

method of banding the heating men together for better heating practice. From this grew the Western Warm Air Furnace & Supply Association. Fred Nesbit, Omaha, was enthusiastic over it. George Harms and Mr. Meyer, the old gentleman of the Meyer organization who is now deceased, were the fellows who were first to give the idea push. In fact, in the east one gentleman was unkind enough to say that F. Meyer & Brother Company with George

Harms were the whole association.

Mr. Harms has always been willing with money and influence to assist in any organization that would tend to better warm air heating conditions. Personally I say stick to the Standard Code. Since this method of installing furnaces has been perfected there has not been a warm air heating job that I know of installed according to that system that did not give perfect satisfaction.

Increased Cost of Distributing Goods Threatens to Offset Economies in Manufacture

Old Distribution Channels Being Flooded, Increasing Competition

REVOLUTIONARY changes in the field of distribution were held accountable for most of the difficulties with which the business in the United States is now confronted by Alvin E. Dodd, Manager of the Department of Domestic Distribution of the Chamber of Commerce of the United States, in a recent address at Columbus, Ohio.

"Production has grown so rapidly," he said, "that it is flooding the old channels by which goods found their way from producer to consumer, resulting in the most relentless and in many cases the most destructive competition business has ever known. While the costs of manufacturing have been reduced, the costs of distributing products threatens to offset these economies. Business is beginning to realize that it is spending too much in selling what it has made.

"Precisely as all nature appears to have passed through transition stages, distribution has done the same thing and is in a transition stage today. We are too near it—our distance is too short to give us a correct perspective and a clear vision. We recognize the wholesale and the retail functions with measurable distinctness, but even they are enclosed in spheres more or less misty which prevent an accurate measure of their dimensions or of the internal changes which are taking place.

"There was a time, not so long ago, when distribution followed the direct route: Manufacturer to wholesaler, wholesaler to retailer, retailer to consumer. Almost any kind of competition was more or less conventional—from libel to mayhem—from conspiracy to kidnapping.

"Competition was between dealers engaged in the same kind of business and laws were passed to prevent the formation of 'trusts.' We have outgrown all this or most of it and today we have the super-association for the purpose of mutual benefit through studies of economies and better merchandising practices.

"Methods of distribution of immense importance and wholly different from other methods are appearing almost like mushrooms, but with the sturdy and substantial nature of the oak.

"There is still another tendency which must be contemplated in considering the basic facts in distribution: Wholesalers are becoming manufacturers; retailers are combining successfully to perform the wholesale function for themselves; and wholesalers are becoming not only manufacturers, but are establishing their own 'chains' of retail stores. Department stores are forming into 'chains'; and, undoubtedly, there are other instances of change which will excite our

amazement when they are recognized. Much of this is due to the need for wider and greater distribution brought about by the increased productive facilities which were born by the demands for military supplies during the war.

"While our population has grown, it has not been able to assimilate the entire output of our factories, as a consequence of which there has been immense effort to discover new methods of sale."

A Self-Operating Steam-Oil Burner for Both Domestic or Commercial Use

An oil burner that eliminates carbon is the achievement of the Nokarbon Oil Burner Company, at Cleveland, Ohio. According to Howard W. White, designer, this burner has a mixer combining superheated steam with the oil, giving a fuel that insures perfect combustion, thereby preventing the formation of carbon. Further, it permits the use of any grade of oil from crude to crankcase and still prevents carbon formation.

This burner is so simple in design that it is free from the troubles of complicated systems. There are no fans, pumps, no motors to get out of order. A variation of one degree starts or stops the burner. Constant heat at any degree is always maintained.

It operates efficiently on any type of heating plant whether warm air, hot water, steam or vapor heat. It is compact, quiet, clean, odorless, smokeless and inexpensive, operating at a cost as cheap as coal and one-third the cost of gas, making an ideal heating plant for any size home. Every feature is simple and fundamentally correct in design. The worst that it can do is to automatically shut down should you forget to replenish your oil supply or should the small pilot go out, say the manufacturers. All danger of fire is eliminated.

Twelve years have been spent in perfecting this burner, with its many labor-saving, money-saving features, and it is guaranteed for two years against repairs.

Arrangements for sales territories

are now being made from coast to coast. Any additional information on this burner can be obtained by addressing your inquiries to Nokarbon Oil Burner Sales Company, 8612 Superior Avenue, Cleveland, Ohio.

Roy Moffett Becomes Chicago Branch Manager L. J. Mueller

L. J. Mueller Furnace Company, Milwaukee, Wisconsin, announces the appointment of Roy M. Moffett as general branch manager of the Chicago office. Mr. Moffett has been with the company for the past five years and formerly traveled in the Ohio territory for the company.

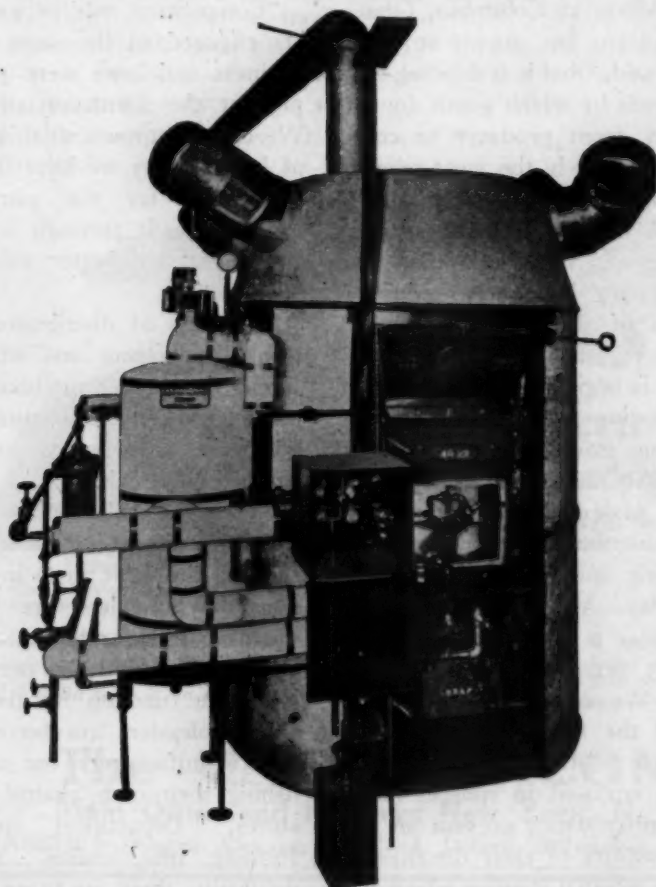
New Warm Air Furnace Burner Makes Sawdust as Fuel Possible

Sawdust and hogged fuel are on the road from the waste dump to clean houses and increased bank accounts after many years of experimental work in evolving a burner for house heating purposes. The new conifer burner now manufactured in Washington is being enthusiastically received by house owners and mill men because it promises less dirt about the home, economy in heating, and creates an active demand for the thousands of tons of sawdust that has heretofore been a source of cost, annoyance and waste to the mills.

The burner is automatic in its operation. A hopper holds approximately enough fuel for a day's run; the feeding magazine is adjustable to meet different conditions of the sawdust or hogged fuel.

Wife of L. J. Cooper St. Louis Dies After Brief Illness

Mrs. L. J. Cooper, wife of Mr. Cooper, President of the Cooper Sheet Metal Works, St. Louis, died March 4th, 1928, following a brief illness. Mrs. Cooper, while not very active in association work, had a wide circle of friends. The sympathy of the trade is extended to her husband and children.



Illustrating the Machine

Buffalo Furnace Installers Making Progress Which Before Organization Was Impossible

*Succeed in Getting Standard Code
Into Kenmore Building Code*

THE village of Kenmore, New York, a suburb of Buffalo, as a result of the combined efforts of the Greater Buffalo Warm Air Heating Association, has now the Standard Furnace Code incorporated in its building ordinance, writes Arthur W. Hunt, Lennox Furnace Company representative in Buffalo, New York.

"Isn't it remarkable," said Mr. Hunt, "what a little organized effort will do? And yet, it seems so hard for some warm air furnace installers to get together.

"Less than one year ago, several of the Buffalo installers said, 'You can't get these furnace men to come in out of the rain, let alone get them organized.' Today, these same men are organized under the name of the Greater Buffalo Warm Air Heating Association, which includes the suburban of Buffalo towns within a radius of 15 miles.

"March 19, some 23 of the members responded to a phone call for help from their brother installers at Kenmore, New York, the largest suburb of Buffalo, asking that they come out and help show Kenmore's councilmen the necessity of passing an ordinance to regulate the installation of warm air furnaces according to the Standard Code. Not only did these members arrive on time, but they brought Dr. Louis E. Blanchard with them, who is successfully heating 24 rooms with two modern warm air furnaces and knows from experience just what good warm air heating is. After his 15-minute talk, Dr. Blanchard was asked several questions.

"One of the outstanding points of Dr. Blanchard's talk was: 'Of the various heating devices, the warm air furnace is, without a doubt, the best, as it keeps the air in circulation and by supplying the proper amount of moisture through a humidifying system reduces the amount of dust.

The air is sterilized and with the proper return circulation it is not burned, but delivered warm into the room. It is economical because of its recirculation, making unnecessary the heating of large volumes of cold air.

"The physical properties of the recirculating air can be automatically controlled and we create summer conditions in the winter. Of the various predisposing causes of sickness, impurities of the air are perhaps the most important. This phase of public health was almost completely ignored until the recent anti-tuberculosis propaganda, when it was definitely established that there was a close relationship between impure air and the inflammatory affections of the respiratory passages.

"After several short talks by furnace installers, and the answering of a few questions, the Standard Code was officially adopted as written and becomes effective at once.

"This same organization is also working on Buffalo, as well as several other suburban towns, in its endeavor to have the Standard Code passed.

"The moral is, don't get discouraged because three or four say it can not be done; tell them you are from 'Missouri,' and get busy."

Detroit Warm Air Heating Contractors Survive Kalamazoo Convention

This live organization held its regular monthly meeting at the Imperial Hotel on Thursday evening, March 14th. As usual, the first event was a fine dinner. An intermission was then taken, which permitted sufficient time to discuss the many funny incidents of the State Convention. Fred Bishop and John De Graff reported having had a wonderful time. Mr. De Graff says he expects to attend the next con-

vention at Flint, but will insist on having a room far distant from the Barber Shop Quartet.

President Fuller called the meeting to order and asked Mr. De Graff to tell about the convention. Mr. De Graff told the members he considered the convention a wonderful event and he hopes that every member of the Detroit Association will attend the next convention.

State Secretary Ederle was asked to explain the Grand Rapids guaranteed heating plan. He stated that the Grand Rapids idea had worked out very satisfactorily and suggested that this idea or a similar one be considered by the Detroit Association.

N. J. Kennedy was introduced and proposed to the members a plan which he thinks would work successfully for the association. His complete plan will be explained later. Mr. Kennedy's suggested plan was well received and a general discussion followed.—*Michigan Bulletin*.

John Behler Improves After Operation for Appendicitis

In the report of the Michigan Travelers' Auxiliary meeting held at Kalamazoo, Michigan, March 6, an error was made in reporting one of the resolutions that was passed. The resolution should have read as follows: "We resolved that a letter of sympathy be sent to John Behler, of Behler & Young, Grand Rapids, Michigan, who recently underwent an operation for appendicitis and is now convalescing."

John Sinclair and F. W. Thorp Form Bay City Sheet Metal Company

The Bay City Sheet Metal Company, foot of Cherry Street, Green Bay, Wisconsin, has been organized, with John Sinclair and F. W. Thorp as proprietors in active management. The company will do warm air furnace installing and general sheet metal work of all kinds. They are desirous of receiving catalogs of materials on these lines.

amazement when they are recognized. Much of this is due to the need for wider and greater distribution brought about by the increased productive facilities which were born by the demands for military supplies during the war.

"While our population has grown, it has not been able to assimilate the entire output of our factories, as a consequence of which there has been immense effort to discover new methods of sale."

A Self-Operating Steam-Oil Burner for Both Domestic or Commercial Use

An oil burner that eliminates carbon is the achievement of the Nokarbon Oil Burner Company, at Cleveland, Ohio. According to Howard W. White, designer, this burner has a mixer combining superheated steam with the oil, giving a fuel that insures perfect combustion, thereby preventing the formation of carbon. Further, it permits the use of any grade of oil from crude to crankcase and still prevents carbon formation.

This burner is so simple in design that it is free from the troubles of complicated systems. There are no fans, pumps, no motors to get out of order. A variation of one degree starts or stops the burner. Constant heat at any degree is always maintained.

It operates efficiently on any type of heating plant whether warm air, hot water, steam or vapor heat. It is compact, quiet, clean, odorless, smokeless and inexpensive, operating at a cost as cheap as coal and one-third the cost of gas, making an ideal heating plant for any size home. Every feature is simple and fundamentally correct in design. The worst that it can do is to automatically shut down should you forget to replenish your oil supply or should the small pilot go out, say the manufacturers. All danger of fire is eliminated.

Twelve years have been spent in perfecting this burner, with its many labor-saving, money-saving features, and it is guaranteed for two years against repairs.

Arrangements for sales territories

are now being made from coast to coast. Any additional information on this burner can be obtained by addressing your inquiries to Nokarbon Oil Burner Sales Company, 8612 Superior Avenue, Cleveland, Ohio.

Roy Moffett Becomes Chicago Branch Manager L. J. Mueller

L. J. Mueller Furnace Company, Milwaukee, Wisconsin, announces the appointment of Roy M. Moffett as general branch manager of the Chicago office. Mr. Moffett has been with the company for the past five years and formerly traveled in the Ohio territory for the company.

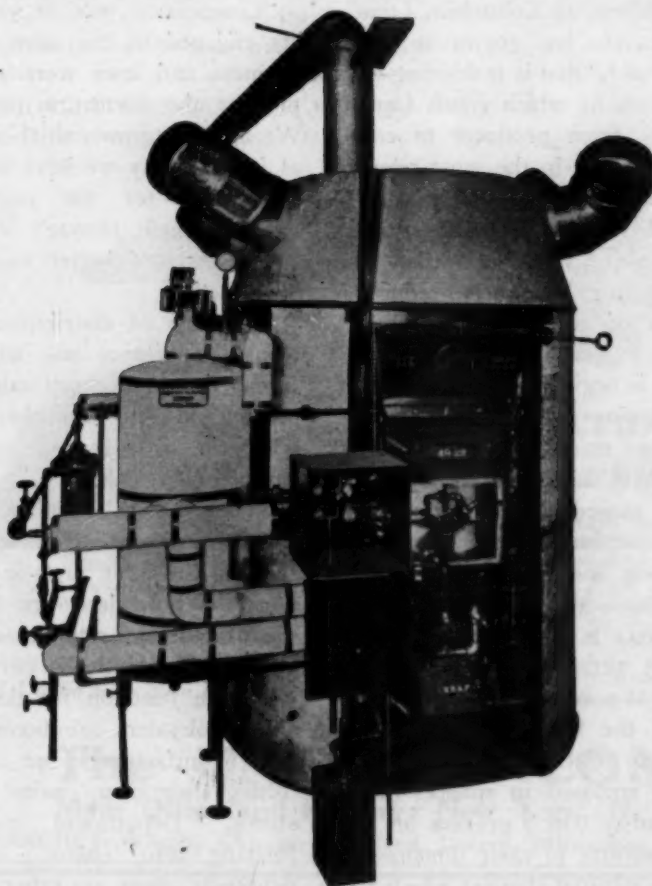
New Warm Air Furnace Burner Makes Sawdust as Fuel Possible

Sawdust and hogged fuel are on the road from the waste dump to clean houses and increased bank accounts after many years of experimental work in evolving a burner for house heating purposes. The new conifer burner now manufactured in Washington is being enthusiastically received by house owners and mill men because it promises less dirt about the home, economy in heating, and creates an active demand for the thousands of tons of sawdust that has heretofore been a source of cost, annoyance and waste to the mills.

The burner is automatic in its operation. A hopper holds approximately enough fuel for a day's run; the feeding magazine is adjustable to meet different conditions of the sawdust or hogged fuel.

Wife of L. J. Cooper St. Louis Dies After Brief Illness

Mrs. L. J. Cooper, wife of Mr. Cooper, President of the Cooper Sheet Metal Works, St. Louis, died March 4th, 1928, following a brief illness. Mrs. Cooper, while not very active in association work, had a wide circle of friends. The sympathy of the trade is extended to her husband and children.



Illustrating the Machine

Buffalo Furnace Installers Making Progress Which Before Organization Was Impossible

*Succeed in Getting Standard Code
Into Kenmore Building Code*

THE village of Kenmore, New York, a suburb of Buffalo, as a result of the combined efforts of the Greater Buffalo Warm Air Heating Association, has now the Standard Furnace Code incorporated in its building ordinance, writes Arthur W. Hunt, Lennox Furnace Company representative in Buffalo, New York.

"Isn't it remarkable," said Mr. Hunt, "what a little organized effort will do? And yet, it seems so hard for some warm air furnace installers to get together."

"Less than one year ago, several of the Buffalo installers said, 'You can't get these furnace men to come in out of the rain, let alone get them organized.' Today, these same men are organized under the name of the Greater Buffalo Warm Air Heating Association, which includes the suburban of Buffalo towns within a radius of 15 miles."

"March 19, some 23 of the members responded to a phone call for help from their brother installers at Kenmore, New York, the largest suburb of Buffalo, asking that they come out and help show Kenmore's councilmen the necessity of passing an ordinance to regulate the installation of warm air furnaces according to the Standard Code. Not only did these members arrive on time, but they brought Dr. Louis E. Blanchard with them, who is successfully heating 24 rooms with two modern warm air furnaces and knows from experience just what good warm air heating is. After his 15-minute talk, Dr. Blanchard was asked several questions."

"One of the outstanding points of Dr. Blanchard's talk was: 'Of the various heating devices, the warm air furnace is, without a doubt, the best, as it keeps the air in circulation and by supplying the proper amount of moisture through a humidifying system reduces the amount of dust."

The air is sterilized and with the proper return circulation it is not burned, but delivered warm into the room. It is economical because of its recirculation, making unnecessary the heating of large volumes of cold air."

"The physical properties of the recirculating air can be automatically controlled and we create summer conditions in the winter. Of the various predisposing causes of sickness, impurities of the air are perhaps the most important. This phase of public health was almost completely ignored until the recent anti-tuberculosis propaganda, when it was definitely established that there was a close relationship between impure air and the inflammatory affections of the respiratory passages."

"After several short talks by furnace installers, and the answering of a few questions, the Standard Code was officially adopted as written and becomes effective at once."

"This same organization is also working on Buffalo, as well as several other suburban towns, in its endeavor to have the Standard Code passed."

"The moral is, don't get discouraged because three or four say it can not be done; tell them you are from 'Missouri,' and get busy."

Detroit Warm Air Heating Contractors Survive Kalamazoo Convention

This live organization held its regular monthly meeting at the Imperial Hotel on Thursday evening, March 14th. As usual, the first event was a fine dinner. An intermission was then taken, which permitted sufficient time to discuss the many funny incidents of the State Convention. Fred Bishop and John De Graff reported having had a wonderful time. Mr. De Graff says he expects to attend the next con-

vention at Flint, but will insist on having a room far distant from the Barber Shop Quartet.

President Fuller called the meeting to order and asked Mr. De Graff to tell about the convention. Mr. De Graff told the members he considered the convention a wonderful event and he hopes that every member of the Detroit Association will attend the next convention.

State Secretary Ederle was asked to explain the Grand Rapids guaranteed heating plan. He stated that the Grand Rapids idea had worked out very satisfactorily and suggested that this idea or a similar one be considered by the Detroit Association.

N. J. Kennedy was introduced and proposed to the members a plan which he thinks would work successfully for the association. His complete plan will be explained later. Mr. Kennedy's suggested plan was well received and a general discussion followed.—*Michigan Bulletin*.

John Behler Improves After Operation for Appendicitis

In the report of the Michigan Travelers' Auxiliary meeting held at Kalamazoo, Michigan, March 6, an error was made in reporting one of the resolutions that was passed. The resolution should have read as follows: "We resolved that a letter of sympathy be sent to John Behler, of Behler & Young, Grand Rapids, Michigan, who recently underwent an operation for appendicitis and is now convalescing."

John Sinclair and F. W. Thorp Form Bay City Sheet Metal Company

The Bay City Sheet Metal Company, foot of Cherry Street, Green Bay, Wisconsin, has been organized, with John Sinclair and F. W. Thorp as proprietors in active management. The company will do warm air furnace installing and general sheet metal work of all kinds. They are desirous of receiving catalogs of materials on these lines.

Sentiment in Steel Industry Is Cheerful—Price Situation Less Steady

Pig Iron Market Is Quieter— Tin Price Makes Sharp Recovery

WITH the second quarter just around the corner the steel industry has again taken its pulse and, after according due weight to seasonal factors, has discovered greater vitality than languishing sentiment in some quarters the past fortnight has indicated.

March promises to close with steelmaking little changed from the 83 to 85 per cent general average governing all month. The week's developments forecast at least another 30 days' good business from the automotive and building industries, now the market leaders. Production is moving directly into consumption and specifications have come easier as first quarter contracts approach their expiration date.

Sentiment on the whole is a shade brighter concerning the immediate prospect. But there is an undercurrent of opinion which, conceding practically a record first quarter and a good second quarter from the standpoint of production, is conservative over the long pull. Much of this uncertainty arises in the steel price situation, which is plainly at the peak of the present upward movement. Irregularity has developed in some of the lighter products and here, as in the heavy lines, not all of the increases sought for the second quarter will materialize.

Pig Iron

Occasional transactions in the pig iron market at Pittsburgh interrupt the long tedium. A nearby sheetmaker is understood to have bought at least 2,000 tons of bessemer iron in a three-way deal between itself, an electric company affiliation, and a steelworks interest. The exact basis is not known, except that the price is below the equivalent of \$17.50, valley. That price occasionally is available on small lots, although some buyers have been

able to close at \$17.25, valley, marking a decline of 25 cents from the recent minimum.

The market for basic iron is unclarified, valley producers refraining from negotiating in this district because local steelmakers name low prices on account of favorable freight rates. Sellers of foundry iron are restoring 50-cent silicon differentials. For instance, one valley producer sold 1,000 tons of No. 1 at \$18.25, and a smaller tonnage of No. 2X at \$17.25. These prices are equivalent to \$17.25, base, valley. That price applies on small sales of foundry and malleable iron.

At Chicago some interest is being shown in third quarter pig iron and a few sales have been closed, but it is expected that inquiries for that period will not gather momentum for some weeks. The heavy buying of last month and early March has tapered off as far as tonnage is concerned, but spot inquiries are reported fairly numerous.

Sales of 100 to 300-ton lots have been active during the week. Resistance to the base price of \$18.50, Chicago furnace, is reported light, and the strengthening of the market to the west, due to the firmer quotations in the St. Louis district, has aided the local price situation.

Pig iron sales are limited to small lots. Shipments are larger than output. Nine furnaces are on foundry iron. The price is firm at \$16, base, Birmingham.

Copper

Copper is held at 14.12½ cents, Connecticut, and 14.25 cents, Midwest, but some is offered about 14.07½, Connecticut, and some has been sold lately for even a little less.

Producers are well booked for this month, with April fairly well covered, but practically no metal is sold for later delivery. The export market has been active on some

days and the price is unchanged at 14.50 cents c. i. f., European ports.

Lead

The lead market is steady with business moderate, after good buying early this month. The market here is firm enough, but strength is retarded by the situation in Europe.

Tin

Buying of tin this past week has been the largest in a long time, with all positions from spot to September active, but mostly early months. The price fell to 50.00 cents, the lowest in several years, about a week ago, and then recovered to 53.00 cents on Monday.

The bulk of the week's business was done at 51.00 cents or a little less. The statistical outlook for March is stronger, but there is no change regarding larger production. Use here and in Europe is large.

Zinc

Business has been quiet and prime Western zinc prices have changed little. But with ore up to \$39 a ton, some at \$40, and production of ore cut, the metal market showed a stronger tendency quickly. The higher price may bring out some business.

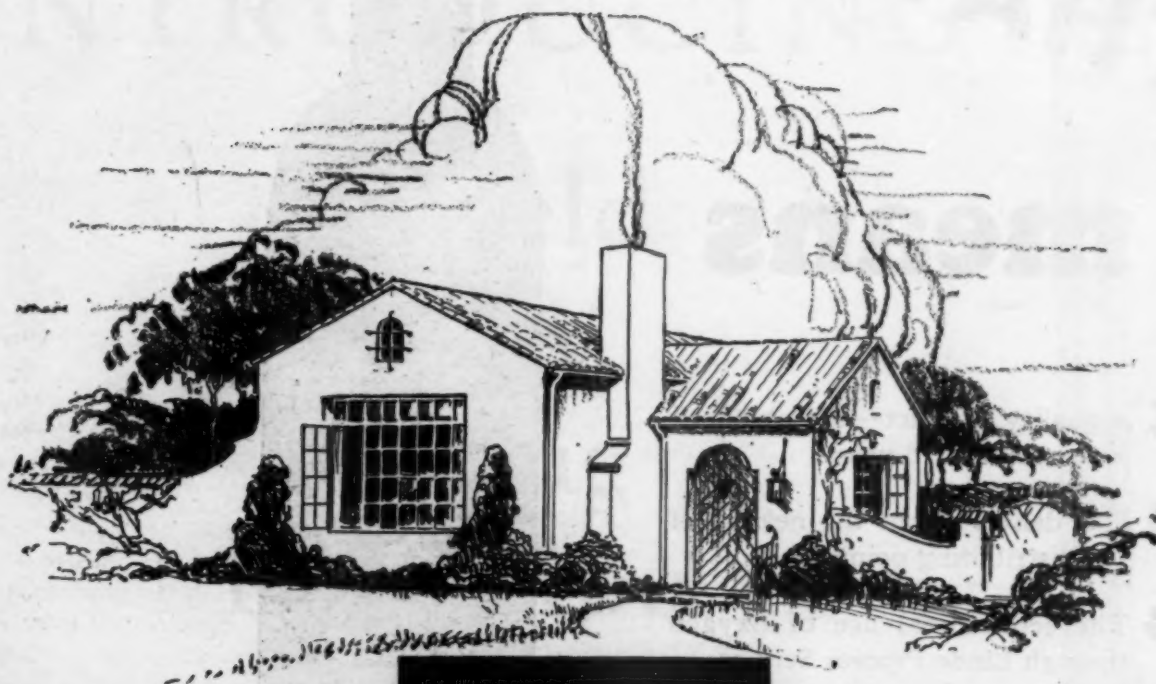
Solder

Chicago warehouse prices on solder are as follows: Warranted 50-50, \$32.50; Commercial 45-55, \$29.50; plumbers', \$26.50; all per 100 pounds.

Old Metals

Wholesale quotations in the Chicago district, which should be considered as nominal, are as follows: Old steel axles, \$16.00 to \$16.50; old iron axles, \$21.50 to \$22.00; steel springs, \$15.00 to \$15.50; No. 1 wrought iron, \$11.00 to \$11.50; No. 1 cast, \$12.75 to \$13.25, all per net tons. Prices for non-ferrous metals are quoted as follows, per pound: Light copper, 9 cents; zinc, 3½ cents; cast aluminum, 13¾ cents.

Lupton Elbows



"Do you think it's all right to send out this bid showing Lupton Elbows?" said a sheet metal man to his partner. "Why don't you figure on another grade and shave our price a little?"



a job better when we use Lupton Elbows. They come clean and sound, they're right for fast work, and they're always uniform. And if we have to make replacements on this job,

"In the first place, Jim," replied the partner in a tone that carried conviction, "the man who's taking these bids knows his building materials! So, when he sees 'Lupton' in our estimate, he'll realize we're figuring on a first-class job.

"Then in the second place, you know yourself we always get through

they'll be as easy as new work."

"You win!" said the first man, "we'll stick to Lupton."

Year after year, for over fifty years, contractors have approved Lupton products. Specify them to your jobber.

DAVID LUPTON'S SONS CO.
Allegheny Ave. & Tulip St. Philadelphia

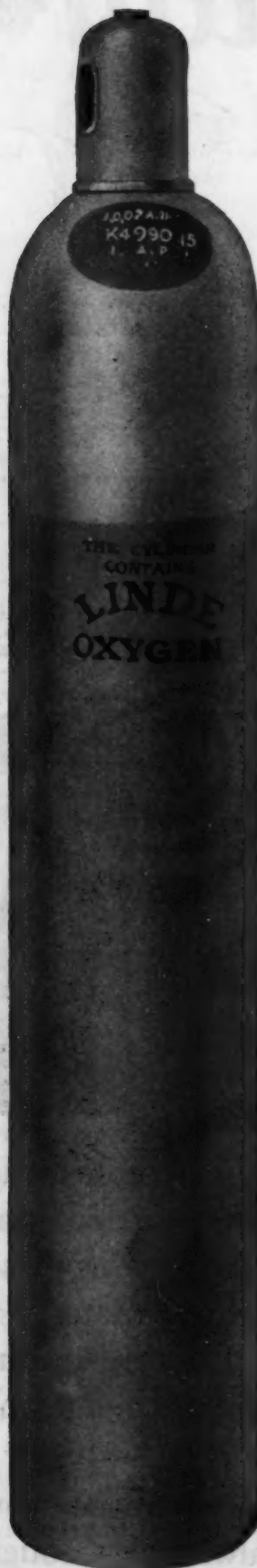
THAT LINDE LABEL

means

- 1** A quality product—the standard for more than 20 years.
- 2** Fast delivery from the nearest of 152 distributing points.
- 3** The economical use of oxygen through Linde Process Service.

Incidentally, have you seen the Linde magazine—"Oxy-acetylene Tips?" We'll be glad to send you a copy. It's part of Linde Process Service.

LINDE OXYGEN



**THE LINDE AIR
PRODUCTS CO.**

*Unit of Union Carbide and
Carbon Corporation*



General Offices:

**Carbide and Carbon Building
30 East 42d St., New York**

47 Plants

105 Warehouses

INTRODUCING

Oxweld C-14 cutting blowpipe

IF YOU are perfectly satisfied with your cutting blowpipes, don't ask to have the C-14 demonstrated.

Because—

Every time this new member of the Oxweld family is demonstrated, it makes a convert.

It has all the inherent advantages of the Oxweld injector type blowpipe.

It can be used with either low or medium pressure acetylene. And you can't make it back-fire.

OXWELD ACETYLENE COMPANY



Unit of Union Carbide and Carbon Corporation

NEW YORK CITY, 30 East 42d Street

CHICAGO, 3642 Jasper Place SAN FRANCISCO, 8th and Brannon Sts.

STOCKS IN 41 CITIES

IN CANADA, Dominion Oxygen Company, Ltd., Toronto

Oxweld

WELDING AND CUTTING APPARATUS



Mention AMERICAN ARTISAN in your reply—Thank you!

Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN is the only publication containing Western Metal, Furnace Supply and Hardware prices corrected weekly

METALS

PIG IRON

Chicago Fdy., No. 2	22 01
Southern Fdy. No. 2	22 01
Lake Superior Charcoal	27 94
Malleable	18 50

FIRST QUALITY BRIGHT TIN PLATES

IC 20x28 112 sheets	\$25 10
IX 20x28	25 00
IXX 20x28	18 20
IXXX 20x28	17 55
IXXXX 20x28	18 95

TERNE PLATES

IC 20x28, 40-lb. 112 sheets	\$25 00
IX 20x28, 40-lb. 112 sheets	27 75
IC 20x28, 25-lb. 112 sheets	21 15
IX 20x28, 25-lb. 112 sheets	23 80
IC 20x28, 20-lb. 112 sheets	19 55
IX 20x28, 20-lb. 112 sheets	22 05
IC 20x28, 15-lb. 112 sheets	18 05

"ARMCO" INGOT IRON PLATES

No. 8 ga. up to and including 1/4 in.—100 lbs. \$4 55

COKE PLATES

Cokes, 80 lbs. base, 20x28	\$13 00
Cokes, 90 lbs. base, 20x28	12 80
Cokes, 100 lbs. base, 20x28	14 00
Cokes, 107 lbs. base, IC	14 30
Cokes, 135 lbs. base, IX	16 40
Cokes, 155 lbs. base, 55 sheets	9 20
Cokes, 175 lbs. base, 55 sheets	10 05
Cokes, 195 lbs. base, 55 sheets	10 90

BLUE ANNEALED SHEETS

Base 10 ga. per 100 lbs. \$2 50
"Armco" 10 ga. per 100 lbs. 4 00

ONE PASS COLD ROLLED BLACK

No. 18-20	per 100 lbs. \$3 75
No. 22	per 100 lbs. 3 90
No. 24	per 100 lbs. 3 95
No. 26	per 100 lbs. 4 05
No. 27	per 100 lbs. 4 10
No. 28	per 100 lbs. 4 20
No. 29	per 100 lbs. 4 35
No. 30	per 100 lbs. 4 45

"ARMCO" GALVANIZED

"Armco" 24. per 100 lbs. \$6 15

GALVANIZED

No. 18	per 100 lbs. \$4 30
No. 19	per 100 lbs. 4 45
No. 20	per 100 lbs. 4 60
No. 22	per 100 lbs. 4 65
No. 24	per 100 lbs. 4 80
No. 26	per 100 lbs. 5 05
No. 27	per 100 lbs. 5 15
No. 28	per 100 lbs. 5 30
No. 30	per 100 lbs. 5 70

BAR SOLDER

Warranted 50-50	per 100 lbs. \$22 50
Commercial 45-55	per 100 lbs. 29 50
Plumbers	per 100 lbs. 26 50

ZINC

In Slabs \$ 8 50

SHEET ZINC

Cash Lots (600 lbs.) \$12 00
Sheet Lots 12 00

BRASS

Sheets, Chicago base	17 1/2 c
Mill base	15 c
Tubing, braided base	26 1/2 c
Wire, base	13 1/2 c
Rods, base	15 1/2 c

COPPER

Sheets, Chicago base	22 1/2 c
Mill base	22 1/2 c
Tubing, seamless base	25 1/2 c
Wire, No. 3, B & S Ga.	13 1/2 c
Wire, No. 10, B & S Ga.	19 c
Wire, No. 11, B & S Ga.	19 1/2 c
Wire, No. 3, B & S Ga. and heavier	18 1/2 c

LEAD

American Pig	per 100 lbs. \$7 00
Bar	per 100 lbs. 8 00

TIN

Pig Tin	per 100 lbs. \$59 00
Bar Tin	per 100 lbs. 60 00

HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

ASBESTOS

Paper up to 1/16	6c per lb.
Roll board	5 1/4 c per lb.
Mill board 3/32 to 1/2	6c per lb.
Corrugated Paper (250 sq. ft. to roll)	\$6 00 per roll

BRUSHES

Furnace Pipe Cleaning Bristle, with handle, each	\$0 75
--	--------

Flue Cleaning

Steel only, each	1 25
------------------	------

BURRS

Copper Burrs only	40-2 1/2 c
-------------------	------------

CEMENT, FURNACE

American Seal, 5-lb. cans, net	\$ 45
American Seal, 10-lb. cans, net	85
American Seal, 25-lb. cans, net	2 25
Pecora	per 100 lbs. 7 50

CHIMNEY TOPS

Adams' Revolving	Wt. Doz. Price Doz.
4 in.	21 lbs. \$11 00
6 in.	24 lbs. 11 50
8 in.	30 lbs. 12 50
9 in.	32 lbs. 15 00
10 in.	35 lbs. 16 50
12 in.	40 lbs. 18 00
14 in.	48 lbs. 22 00
14 in.	110 lbs. 26 00

CLINKER TONGS

Each	\$0 75
Per doz.	8 40

CLIPS

Damper	
No-Rivet Steel, with tail pieces, per gross.....	\$9 50
Rivet Steel, with tail pieces, per gross	7 50
Tail pieces, per gross.....	2 40

COPPERS—Soldering

Pointed Roofing	3 lb. and heavier	per lb. 40c
	2 1/2 lb.	per lb. 45c
	2 lb.	per lb. 45c
	1 1/2 lb.	per lb. 45c
	1 lb.	per lb. 40c

CORNICE BRAKES

Chicago Steel Bending	No. 1 to 6B	Net
-----------------------	-------------	-----

CUT-OFFS

Gal. plain, round or cor. rd.	24 gauge	30 c
	26 gauge	35 c

DAMPERS

"Yankee" Hot Air	7 inch, each 20c, doz.	\$1 60
	8 inch, each 25c, doz.	2 20
	9 inch, each 30c, doz.	2 60
	10 inch, each 32c, doz.	3 20

Smoke Pipe	7 inch, doz.	\$1 60
	8 inch, doz.	2 20
	9 inch, doz.	3 00
	10 inch, doz.	3 75
	12 inch, doz.	4 50

ADAMS No. 1 CHECK

Check and Collar Complete	8 inch, each	2 00
	9 inch, each	2 25
End Check Only	8 inch, each	1 60
	9 inch, each	1 85

Collar Only	8 inch, each	50
	9 inch, each	55

No. 2 CHECK

8 inch, each	1 00
9 inch, each	1 00

10% Disc. on Adams No. 1	
--------------------------	--

Diamond Smoke Pipe	7 inch, doz.	\$ 2 00
	8 inch, doz.	3 20
	9 inch, doz.	4 50
	10 inch, doz.	6 00

Adams' Sheet Metal

7 inch, doz.	\$ 1 60
8 inch, doz.	2 20
9 inch, doz.	2 60
10 inch, doz.	3 20
12 inch, doz.	3 50
14 inch, doz.	5 00

EAVES TROUGH

Galv. Crimpedge, crated 75 & 5%	
Zinc, "Barnes"	60%

ELBOWS

Conductor Pipe	Galv. plain or corrugated, round flat Crimp.
28 Gauge	60%
26 Gauge	45%
24 Gauge	15%

Galv. & Terne Steel

Plain Rd. and Rd. Corr.	28 Ga.	60%
	26 Ga.	45%
	24 Ga.	15%

Square Corrugated

No. 28 Gauge	50%
26 Gauge	35%

Fortico Elbows

Standard Gauge Conductor Pipe, plain or corrugated.	70 & 5%
Not nested	70 & 5%
Nested Solid	70 & 5%

Sq. Corr., A. & B. & Octagon

28 Ga.	50%
26 Ga.	35%

Fortico

1", 1 1/4", 1 1/2"	45%
--------------------	-----

Copper

16 oz., all designs	50%
---------------------	-----

Zinc—

All styles	60%
------------	-----

ELBOWS—Steel Pipe

1-piece Corrugated, Uniform Blue	"Milcor" No. 28 Gauge, Doz.
5-inch	\$1 05
6-inch	1 20
7-inch	1 75

Special Corrugated

6-inch	\$1 00
7-inch	1 60

Adjustable—Uniform Blue

"Milcor" No. 28 Gauge, Uniform Blue	5-inch	\$1 05
	6-inch	1 75
	7-inch	2 10

WOOD FACES—50% off list.

FENCE

738-8-12 1/2% (100 rods)	\$28 68
1948-8-14 1/2% (100 rods)	42 62

FILES AND RASPS

Heller's (American)	50-10%
American	60-10%
Arcade	50%
Black Diamond	50%
Eagle	50%
Great Western	50%
Kearney & Foot	50%
McClellan	50%
Nicholson	50%
Simonds	60%

FIRE POTS

Geo. W. Diener Mfg. Co.	Ea.
No. 02 Gasoline Torch, 1 qt.	\$ 5 13
No. 0350, Kerosene, or Gasoline Torch, 1 qt.	6 50
No. 10 Tinner's Furn. Square tank, 1 gal.	11 20
No. 15 Tinner's Furn. Round tank, 1 gal.	10 70
No. 21 Gas Soldering Furnace	2 60
No. 110 Automatic Gas Soldering Furnace	10 50

Quick Meal Stove Co.

Vesuvius, F. O. B. St. Louis 30% (Extra Disc. for large quantities.)	
--	--

GALVANIZED WARE

Pails (Galv. after made), 10-qt.	\$3 00
Tubs (Galv. after made), No. 1	5 75
No. 2	6 80

GLASS

Single Strength, A, 52-in. brackets	37%
Single Strength, A, 34 to 40-in. bracket	36%
Single Strength, A, all other brackets	39-5%
Double Strength, A, all sizes	39%

HANGERS

Conductor Pipe	Milcor Perfection Wire	2 50
	Milcor Triplex Wire	10 c

Eaves Trough

Milcor Steel (galv. after forming) List	plus 13 1/2%
Milcor Selflock E. T. Wire, List	plus 50%

HOOKS

Conductor	"Direct Drive" Wrought Iron for wood or brick	15 c
-----------	---	------

HUMIDIFIER

"Front-Range" Automatic	In single lots	50%
	In lots of 10 or more	50-5%
	In lots of 25 or more	50-10%
	Vapor pans, etc., each	50%

LIFTERS

Stove Cover	Coppered	per gro. \$6 00
	Alaska	per gro. 4 75

MALLETS

Tinners	Hickory	per doz. \$2 25
---------	---------	-----------------

MITRES

Galvanized steel mitres, 28 Ga.	70
36 Ga.	60-20

NAILS

Cut Steel	\$4 35
Cut Iron	4 35

Wire

Common	\$ 10
Cement Coated	\$ 10

Continued on Page 172)

Differently Dipped

The fact that it is made by an old Welsh hand-dipping process is the secret of the success of

TARGET AND ARROW ROOFING TIN

But Target and Arrow is not "dipped", in the usual meaning of the word, for, during the 35 minutes consumed in coating each sheet of Target and Arrow, it is actually left to soak in successive pots of boiling palm oil and molten metal. No wonder we say it is "differently dipped"—no wonder it outlasts the building it covers!

N. & G. TAYLOR COMPANY

BROAD AND ARCH STREETS
PHILADELPHIA, PA.

Headquarters for Good Roofing Tin Since 1810

Labor + Material = Money
Save them all by
using Power-Saving Tools.

From a hammer to the
largest brake or shear—
if it's used by the
Sheet Metal Worker or
Furnaceman—we can
supply it.

There's many a short-cut
to added profit in new and
up-to-date tools—and—
right now is the best time
to buy them from—

The J.M. & L.A. Osborn Co.
CLEVELAND

"Every thing used in Sheet Metal Work"



Life Insurance for Sheet Steel

Insure longer life for the sheet
steel you purchase!

Demand protection against cor-
rosion and rust.

Specify

Inland Copper Alloy Steel.

Sheets to this specification last
three to five times longer.

They are durable!

CHS

INLAND STEEL COMPANY
38 SOUTH DEARBORN STREET
CHICAGO

Sheets Rivets Billets Bars Plates Shapes
Rails Track Accessories

Contributing **SHEET STEEL** Member
TRADE EXTENSION COMMITTEE

ADVERTISERS' INDEX

The dash (—) indicates that the advertisement runs on a regular schedule but does not appear in this issue.

A

Aeolus-Dickinson Co. —
Agricola Furnace Co. —
Akrot Ventilators, Inc. 178
American Brass Co. —
American Foundry & Furnace Co. 138
American Furnace Co. 140
Armco Distributors Assn. of America Front Cover
American Steel & Wire Co. 175
American Wood Register Co. —
Arex Co. —
Armstrong Furnace Co. —
Auer Register Co. —
Automatic Humidifier Co. —

B

Banner Mahoning Furnace Co. —
Barnes Metal Products Co. —
Beh & Co. —
Berger Bros. Co. 173
Berger Co., L. D. —
Bertsch & Co. 175
Brillion Furnace Co. —
Buckeye Products Co. —
Burgess Soldering Furnace Co. 175
Burton Co., W. J. 173

C

Calkins & Pearce —
Central Alloy Steel Corp. —
Chicago Solder Co. —
Cleveland Castings Pattern Co. 143
Colburn Heater Co. —
Connors Paint Co., Wm. 143
Copper & Brass Research Association —

D

Dieckmann Co., Ferdinand —
Diener Mfg. Co., Geo. W. —
Dreis & Krump Mfg. Co. 175

E

Eaglesfield Ventilator Co. —

F

Fanner Mfg. Co. —
Floral City Heater Co. —
Fox Furnace Co. 141
Forest City-Walworth Run Fdy. Co. 144
Fort Shelby Hotel —
Friedley-Voshardt Co. —

G

Gerock Bros. Mfg. Co. —

H

Hall-Neal Furnace Co. 139
Harrington & King Perf. Co. 173
Hart & Cooley Co. —
Henry Furnace & Fdy. Co. —
Hess-Snyder Co. 143
Hessler Co., H. E. 175
Homer Furnace Co. 136
Hyro Mfg. Co. —

I

Independent Register & Mfg. Co. —
Inland Steel Co. 171
International Heater Co. —

K

Kernchen Co. 178
Kirk-Latty Co. 143
Kramer Bros. Fdy. Co. —

L

Lamneck & Co., W. E. 145
Lamson & Sessions Co., The. 143
Langenberg Mfg. Co. 135
Lennox Furnace Co. —
Linde Air Products Co. 168
Lupton's Sons Co., David. 167

M

Marshalltown Mfg. Co. —
May-Flebege Co. —
Merchant & Evans Co. —
Meyer & Bro. Co., F. —
Meyer Furnace Co., The. 142
Milwaukee Corr. Co., Back Cover
Moncrief Furnace Co. —
Mt. Vernon Furn. & Mfg. Co. —
Mueller Furnace Co., L. J. —

N

National Heatercraft Institute. —
New Jersey Zinc Sales Co., The. —
Northwestern Stove Repair Co. —

O

Osborn Co., The J. M. & L. A. 171
Oxweld Acetylene Co. 169

P

Parker, Kalon Corp. 179
Peck, H. E. 178
Peck, Stow & Wilcox 173
Pecora Paint Co. —
Polk & Co., R. L. —
Prest-O-Lite Co., Inc. —

Q

Quick-Meal Stove Co. —
Quincy Pattern Co. 143

R

Robinson, A. H., Co. —
Rock Island Register Co. —
Rybolt Heater Co. —
Ryerson & Sons, Inc., Jos. T. 175

S

Sheet Steel Trade Ex. Comm. —
Special Chemicals Co. —
Standard Furn. & Supply Co. 140
Standard Ventilator Co. 173
St. Louis Tech. Inst. —
Success Heater Mfg. Co. —

T

Taylor Co., N. & J. 171
Technical Products Co. —
Teela Sheet Metal Co. —
The Thatcher Co. —
Tuttle & Bailey Mfg. Co. 161
XXth Century Htg. & Vent. Co. 147

U

United States Register Co. —
Unishear Co., Inc. 162
Utica Division, Richardson & Boynton Co. 127

V

Vall Mfg. Co. —
Vedder Pattern Works 143
Viking Shear Co. —

W

Wafm Air Furnace Fan Co. 148
Waterman-Waterbury Co. —
Western Steel Products Co. —
Wheeling Corr. Co. —
Whitney Mfg. Co., W. A. —
Whitney Metal Tool Co. —
Williamson Heater Co. —
Wise Furnace Co. —

Markets—Continued from Page 170

Ventilating Register

Per gross 9 00
Small, per pair 30
Large, per pair 50

PUTTY

Commercial Putty, 100-lb. Kits \$3 50

QUADRANTS

Malleable Iron Damper. 10%

REDUCERS—Oval Stove Pipe

Per Dos. 7-6, 28-gauge, 1 doz. in carton \$2 00

REGISTERS AND BORDERS

Baseboard, Floor and Wall.

Cast Iron 20%
Steel and Semi-Steel. 40-10%
Baseboard 40-10%
Wall 40-10%
Adjustable Ceiling Ventilators 40-10%

Register Faces—Cast and Steel

Japanned, Bronzed and Plated, 4x6 to 14x14. 40-10%
Large Register Faces—Cast. 14x14 to 38x43 40-10%
Large Register Faces—Steel. 14x14 to 38x43 65-10%

RIDGE ROLL

Galv. Plain Ridge Roll, 8'ld 75-10-5%
Galv. Plain Ridge Roll, crated 75-10%
Globe Finales for Ridge Roll. 50%

Lead

Per 100 lbs. \$12 50

Stove Pipe

"Milcor" "Titelock" Uniform Blue Stove
28 gauge, 5 inch U. C. nested 10 50
28 gauge, 6 inch U. C. nested 11 00
28 gauge, 7 inch U. C. nested 13 00
30 gauge, 5 inch U. C. nested 9 00
30 gauge, 6 inch U. C. nested 10 00
30 gauge, 7 inch U. C. nested 12 00

T-Joint Made up

6-inch, 28 ga. per doz. \$ 4 00

All Zinc

No. 11, all styles. 60%

POKERS, STOVE

W'r't Steel, str't or bent, \$0 75
Nickel Plated, coil handles, 1 10

POKERS, FURNACE

Each \$0 75

FULLEYS

Furnace Tackle. per doz. \$0 85
..... per gro. 8 50
Furnace Screw (enameled) per doz. 75

NETTING, POULTRY

Galvanized before weaving 60%
Galvanized after weaving. 50-10%

PASTE

Asbestos Dry Paste:
200-lb. Barrel \$16 00
100-lb. barrel 8 75
35-lb. pail 3 50
10-lb. bag 1 10
5-lb. bag 60
2½-lb. cartons 35

PIPE

Conductor Cor. Rd., Plain Rd., or Sq.

Galvanized

Crated and nested (all gauges) 75-2½%
Crated and not nested (all gauges) 70-15%

Furnace Pipe

Double Wall Pipe and Fittings 50%
Single Wall Pipe, Round Galvanized Pipe 50%
Galvanized and Tin Fittings 50%

SCREWS

Sheet Metal
7, ½x½, per gross \$0 52
No. 10, ½x½, per gross 65
No. 14, ½x½, per gross. 83

SHEARS, TINNERS' & MACHINISTS'

Viking \$22 00

Lennox Throatless

No. 18 35%
Shear blades 10%
(f. o. b. Marshalltown, Iowa)

SHIELDS, REGISTER

No. 1 "Gem" floor. \$12 00 doz.
No. 2 "Gem" wall. 6 00 doz.

SHOES

Galv. 28 Gauge, Plain or corrugated round flat crimp. 60%
26 gauge round flat crimp. 45%
24 gauge round flat crimp. 15%

SNIPS, TINNERS

Clover Leaf 40 & 10%
National 40 & 10%
Star 50%
Milcor Net

SQUARES

Steel and Iron Net
(Add for bluing \$2 per doz. net)

Mitre Net

Try Net

Try and Bevel. Net

Try and Mitre. Net

Fox's per doz. \$6 00

Winterbottom's 10%

STOPPERS, FLUE

Common per doz. \$1 10
Gem, No. 1. per doz. 1 10
Gem, flat, No. 3. per doz. 1 00

VENTILATORS

Standard 30 to 40%

WIRE

Plain annealed wire, No. 8 per 100 lbs. \$2 06
Galvanized barb wire, per 100 lbs. 3 90
Wire Cloth—black painted, 12-mesh, per 100 sq. ft. 1 25
Cattle Wire—galvanized catch weight spool, per 100 lbs. 3 25
Galvanized Hog Wire, 80 rod spool, per spool 3 11
Galvanized Plain Wire, No. 8, per 100 lbs. 3 25
Stove Pipe, per stone. 1 10

WRINGERS

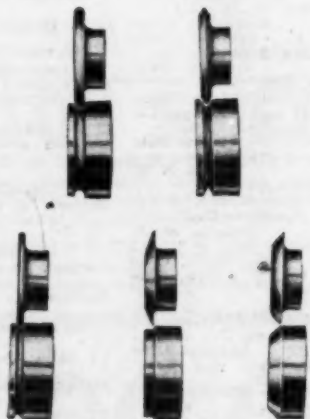
No. 790, Guarantee each \$5 10
No. 770, Bicycle each 4 70
No. 670, Domestic each 4 25
No. 110, Brighton each 3 70
No. 750, Guarantee each 5 10
No. 740, Bicycle each 4 70
No. 22, Pioneer. each 3 40
No. 2, Superb each 3 05



LEARN ABOUT THIS "WONDER" MACHINE



Write for Booklet No. 45



The Pexto New Universal Combination Rotary Bench Machine

Interchangeable Rolls That Make Possible Turning, Wiring,
Burring and Elbow Edging With the One Machine.

THE PECK, STOW AND WILCOX COMPANY, SOUTHTON, CONN., U. S. A.

The W. J. BURTON CO.

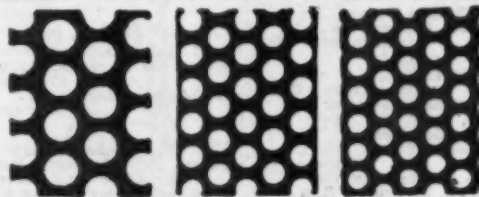
Detroit, Michigan

Forty-Four Years
Serving the
Sheet Metal Contractor

with

**SHEET METAL PRODUCTS
FOR BUILDINGS**

PERFORATED METALS



All Sizes and Shapes of Holes
In Steel, Zinc, Brass, Copper, Tinplate, etc.
For All Screening, Ventilating and Draining
EVERYTHING IN PERFORATED METAL

THE HARRINGTON & KING PERFORATING CO.

5649 FILLMORE ST.-CHICAGO, ILL. U. S. A.
NEW YORK OFFICE 114 LIBERTY ST.

The NEW IMPROVED "STANDARD"

Rotable Ventilator

Now made of Armco Iron

This favorite cone-shaped ventilator
is now improved in several important
points.

The weight of the ventilator body is
now carried on a concave thrust
bearing nested in the apex of the
conical body. This bearing turns
upon the pivot point of the station-
ary center spindle.

The bronze Guide Bushings are now
made of non-corrosive bronze which
minimizes friction and any tendency
to screech when body is rotating.

There are other new features. Write
today for new catalog and price list.



Patents pending

STANDARD VENTILATOR CO., Lewisburg, Pa.

-B.B.- LINE OF SHEET METAL SUPPLIES

B.B. CONDUCTOR HOOKS AND GUTTER HANGERS
"SHUR-LOCK" CONDUCTOR PIPE
OCTAGON AND POLYGON CONDUCTOR PIPE
"E-Z FIT" EAVES TROUGH
"QUAKER CITY" MITRES, ENDS, CAPS AND
OUTLETS
EAVE TROUGH STRAP AND ROD HANGERS
ORNAMENTAL CONDUCTOR STRAPS AND ENDS

YOUR JOBBER CARRIES THEM IN
STOCK FOR PROMPT SHIPMENT

Manufactured by

BERGER BROS. CO.

229 to 237 ARCH STREET

PHILADELPHIA

BUYERS' DIRECTORY

Acetylene (Gas) Dissolved.
Prest-O-Lite Co., Inc.,
New York, N. Y.

Bale Ties.
American Steel & Wire Co.,
Chicago, Ill.

Bolts—Stove.
The Kirk-Latty Co.,
Cleveland, Ohio
Lamson & Sessions Co.,
Cleveland, Ohio
Ryerson & Son, Inc.,
Joa. T.,
Chicago, Ill.

Brakes—Bending.
Dreis & Krump Mfg. Co.,
Chicago, Ill.
Ryerson & Son, Inc.,
Joa. T.,
Chicago, Ill.

Brakes—Cornice.
Dreis & Krump Mfg. Co.,
Chicago, Ill.

Brass and Copper.
American Brass Co.,
Waterbury, Conn.
Copper & Brass Research As-
sociation, New York
Merchant & Evans Co.,
Philadelphia, Pa.

Cans—Garbage.
Osborn Co., The J. M. & L. A.,
Cleveland, Ohio

Castings—Malleable.
Fanner Mfg. Co., Cleveland, Ohio

Ceilings—Metal.
Burton Co., The W. J.,
Detroit, Mich.
Friedley-Voshardt Co.,
Chicago, Ill.
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
Wheeling Corrugating Co.,
Wheeling, W. Va.

Chaplets.
Fanner Mfg. Co., Cleveland, Ohio

Chimney Tops.
Standard Ventilator Co.,
Lawisburg, Pa.

Check Drafts.
Teela Sheet Metal Co.,
Oshkosh, Wis.

Clinker Tongs.
L. J. Mueller Furnace Co.,
Milwaukee, Wis.

Copper.
American Brass Co.,
Waterbury, Conn.
Copper & Brass Research As-
sociation, New York

Cornices.
Friedley-Voshardt Co.,
Chicago, Ill.
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

Cutting Blowpipes.
Oxweld Acetylene Co.,
New York, N. Y.

Cut-offs—Rain Water.
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

Dampers—Quadrants—Accessories.
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
L. J. Mueller Furnace Co.,
Milwaukee, Wis.

Dies—Punch & Press.
La Salle Machine Works,
Chicago, Ill.

Diffuser—Air Duct.
Aeolus-Dickinson Co.,
Chicago, Ill.

Doors—Metal.
Lupton's Sons Co., David,
Philadelphia, Pa.

Drive Screws—Hardened Metallic.
Parker-Kalon Corp.,
854 West 15th St., New York

Eaves Trough.
Barnes Metal Products Co.,
Chicago, Ill.

Berger Bros. Co.,
Philadelphia, Pa.

Burton Co., The W. J.,
Detroit, Mich.

Berger Co., L. D.,
Philadelphia, Pa.

Lupton's Sons Co., David,
Philadelphia, Pa.

Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

New Jersey Zinc Sales Co., The
New York, N. Y.

Wheeling Corrugating Co.,
Wheeling, W. Va.

Elbows and Shoes—Conductor.
Barnes Metal Products Co.,
Chicago, Ill.

Dieckmann Co., Ferdinand,
Cincinnati, Ohio
Lupton's Sons Co., David,
Philadelphia, Pa.

Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

Wood Faces—Cold Air.
Auer Register Co., Cleveland, Ohio
American Wood Register Co.,
Plymouth, Ind.

Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

United States Register Co.,
Battle Creek, Mich.

Fences.
American Steel & Wire Co.,
Chicago, Ill.

Fittings—Conductor.
Barnes Metal Products Co.,
Chicago, Ill.

Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

Flue Thimbles.
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

Furnace Cement—Asbestos.
Buckeye Products Co., The,
Cincinnati, Ohio

Connors Paint Mfg. Co., Wm.,
Troy, N. Y.

Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

Pecora Paint Co., Philadelphia, Pa.

Furnace Cement—Liquid.
Technical Products Co.,
Pittsburgh, Pa.

Furnace Cleaners—Suction.
Brillion Furnace Co., Brillion, Wis.
Williamson Heater Co.,
Cincinnati, Ohio

Furnace Fans.
A. H. Robinson Co., Massillon, Ohio
Warm Air Furnace Fan Co., The,
Cleveland, Ohio

Williamson Heater Co.,
Cincinnati, Ohio

Furnace Rings.
Forest City-Walworth Run
Foundries Co., Cleveland, O.

Milwaukee Corrugating Co.,
Milwaukee, Wis.

Furnaces—Gas.
Mueller Furnace Co., L. J.,
Milwaukee, Wis.

Furnaces—Warm Air.
Agricola Furnace Co., Gadsden, Ala.
American Furnace Co.,
St. Louis, Mo.

American Foundry & Furnace
Co., Bloomington, Ill.

Armstrong Furnace Co.,
London, Ohio

Banner Mahoning Furnace Co.,
Youngstown, Ohio

Brillion Furnace Co., Brillion, Wis.

Calkins & Pearce, Columbus, Ohio

Colburn Heater Co., Chicago, Ill.

Floral City Heater Co.,
Monroe, Mich.

Forest City-Walworth Run Fdy.
Co., Cleveland, Ohio

Fox Furnace Co., Elyria, Ohio

Hall-Neal Furnace Co.,
Indianapolis, Ind.

Henry Furnace & Fdy. Co.,
Cleveland, Ohio

Hess-Snyder Co., Massillon, Ohio

Homer Furnace Co.,
Coldwater, Mich.

International Heater Co.,
Utica, N. Y.

Lamneck Co., W. E.,
Columbus, Ohio

Langenberg Mfg. Co.,
St. Louis, Mo.

Lennox Furnace Co.,
Marshalltown, Ia.; Syracuse, N. Y.

May-Fleiseger Furnace Co.,
Newark, Ohio

Meyer Furnace Co., The, Peoria, Ill.

Moncrief Furnace Co., Atlanta, Ga.

Mt. Vernon Furnace & Mfg. Co.,
Mt. Vernon, Ill.

Mueller Furnace Co., L. J.,
Milwaukee, Wis.

Robinson Furnace Co., A. H.,
Massillon, Ohio

Rybolt Heater Co., Ashland, Ohio

Standard Furnace & Supply Co.,
Omaha, Neb.

Success Heater Mfg. Co.,
Des Moines, Iowa

Thatcher Co.,
Chicago, Ill.

XXth Century Heating & Ventila-
ting Co., Akron, Ohio

Utica Division of Richardson &
Boydton Co., Utica, N. Y.

Waterman-Waterbury Co.,
Minneapolis, Minn.

Western Steel Products Co.,
Duluth, Minn.

Williamson Heater Co.,
Cincinnati, Ohio

Wise Furnace Co.,
Akron, Ohio

Garages—Metal.
Thomas & Armstrong Co., The,
London, Ohio

Gas (Acetylene) Dissolved.
Prest-O-Lite Co., Inc.,
New York, N. Y.

Gas (Nitrogen).
Linde Air Products Co.,
New York, N. Y.

Gas (Oxygen).
Linde Air Products Co.,
New York, N. Y.

Glass—Wire.
Lupton's Sons Co., David,
Philadelphia, Pa.

Grilles.
Auer Register Co., Cleveland, Ohio
Harrington & King Perforating
Co., Chicago, Ill.

Hart & Cooley Co.,
New Britain, Conn.

Independent Reg. Co.,
Cleveland, Ohio

Tuttle & Bailey Mfg. Co.,
Chicago, Ill.

United States Register Co.,
Battle Creek, Mich.

Grilles—Store Front.
Tuttle & Bailey Mfg. Co.,
Chicago, Ill.

Guards—Machine and Belt.
Harrington & King Perforating
Co., Chicago, Ill.

Handles—Boiler.
Berger Bros. Co., Philadelphia, Pa.

Handles—Soldering Iron.
Hyre Mfg. Co., New York, N. Y.

Hangers—Eaves Trough.
Berger Co., L. D., Philadelphia, Pa.

Lupton's Sons Co., David,
Philadelphia, Pa.

Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

Heaters—Cabinet.
Fox Furnace Co., Elyria, Ohio
Mueller Furnace Co., L. J.,
Milwaukee, Wis.

Waterman-Waterbury Co.,
Minneapolis, Minn.

Heaters—Gas.
Calkins & Pearce, Columbus, Ohio

Heaters—School Room.
Floral City Heater Co.,
Monroe, Mich.

International Heater Co.,
Utica, N. Y.

Meyer Furnace Co., The,
Peoria, Ill.

L. J. Mueller Furnace Co.,
Milwaukee, Wis.

Standard Furnace & Supply Co.,
Omaha, Neb.

Waterman-Waterbury Co.,
Minneapolis, Minn.

Hooks—Conductor.
Berger Co., L. D.,
Philadelphia, Pa.

Hotels.
Fort Shelby Hotel, Detroit, Mich.

Humidifiers.
Automatic Humidifier Co.,
Cedar Falls, Iowa

L. J. Mueller Furnace Co.,
Milwaukee, Wis.

Lath—Expanding Metal.
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

Machines—Crimping.
Bertsch & Co.,
Cambridge City, Ind.

Machinery—Culvert.
Bertsch & Co.,
Cambridge City, Ind.

Machines—Thinsmith's.
Bertsch & Co.,
Cambridge City, Ind.

Burton Co., The W. J.,
Detroit, Mich.

Dreis & Krump Mfg. Co.,
Chicago, Ill.

La Salle Machine Works,
Chicago, Ill.

Marshalltown Mfg. Co.,
Marshalltown, Iowa

Osborn Co., The J. M. & L. A.,
Cleveland, Ohio

Peck, Stow & Wilcox Co.,
Southington, Conn.

Ryerson & Son, Inc., Joa. T.,
Chicago, Ill.

Whitney Mfg. Co., W. A.,
Rockford, Ill.

Whitney Metal Tool Co.,
Rockford, Ill.

Mailing Lists
R. L. Folk & Co., Detroit, Mich.

Mandrels.
Hyre Mfg. Co., New York, N. Y.

Metals—Perforated.
Harrington & King Perforating
Co., Chicago, Ill.

Miters.
Friedley-Voshardt Co.,
Chicago, Ill.

Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

Miters—Eaves Trough.
Barnes Metal Products Co.,
Chicago, Ill.

Lupton's Sons Co., David,
Philadelphia, Pa.

Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

Nails—Hardened Masonry.
Parker-Kalon Corp.,
New York, N. Y.

Nails—Wire.
American Steel & Wire Co.,
Chicago, Ill.

Nitrogen (Gas).
Linde Air Products Co.,
New York, N. Y.

Ornaments—Sheet Metal.
Friedley-Voshardt Co.,
Chicago, Ill.

Geroch Bros. Mfg. Co.,
St. Louis, Mo.

Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

Oxygen (Gas).
Linde Air Products Co.,
New York, N. Y.

Paint.
Connors Paint Mfg. Co., Wm.,
Troy, N. Y.

Pecora Paint Co.,
Philadelphia, Pa.

Patterns—Furnace and Stove.
Cleveland Castings Pattern Co.,
Cleveland, Ohio

Quincy Pattern Co., Quincy, Ill.

Vedder Pattern Works,
Troy, N. Y.

Pipe and Fittings—Furnace.
Burton Co., The W. J.,
Detroit, Mich.

Henry Furnace & Fdy. Co.,
Cleveland, Ohio

Lamneck Co., W. E.,
Columbus, Ohio

Meyer & Bro. Co., F., Peoria, Ill.

Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City

Mueller Furnace Co., L. J.,
Milwaukee, Wis.

Osborn Co., The J. M. & L. A.,
Cleveland, Ohio

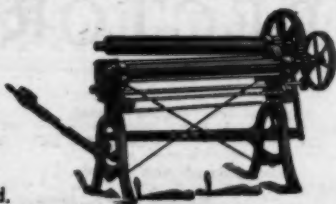
Standard Furnace & Supply Co.,
Omaha, Neb.

50-INCH FORMING ROLL

This Forming Roll is built in all standard sizes, with our Patented Opening Device by means of which it is opened and closed in a few seconds.

We build a complete line of Shears and punches, all sizes, for hand or belt power.

Write for Catalog "R"
BERTSCH & CO., Cambridge City, Ind.



RYERSON SHEETS

IMMEDIATE SHIPMENT FROM STOCK

More than twenty kinds of sheets are carried in stock. Also Bars, Angles, Rivets, Bolts, Tools and Metal-Working Machinery.

Write for Journal and Stock List

JOSEPH T. RYERSON & SON, Inc.

Chicago Milwaukee Jersey City Boston Detroit St. Louis Cincinnati Cleveland Buffalo

\$100.00

IN CASH PRIZES

For Photographs of Attractive Window Displays that have sold Warm Air Heating or Sheet Metal Work

First Prize - \$40.00	Fourth Prize \$10.00
Second Prize \$25.00	Fifth Prize - \$ 5.00
Third Prize - \$15.00	Sixth Prize - \$ 5.00

You may enter as many photographs and descriptions as you desire. Each photograph must be accompanied by descriptions of how the window displays were arranged and the materials used. The description is important and must be adequate. These photographs and descriptions must reach the office of the Auxiliary Secretary, Etta Cohn, 620 South Michigan Avenue, Chicago, Illinois, not later than April 6, 1928.

Each photograph and description must be signed by a fictitious name or device and the same name or device must be put in a sealed envelope containing the real name and address of the contestant.

This sealed envelope must be enclosed with the photograph. The photographs and descriptions will be judged at the convention and announcement of the prize winners will also be made at that time.

This competition is open to any and all sheet metal contractors, warm air furnace installers or roofing contractors.

The Travelers Auxiliary reserves the right to submit for publication in the various trade papers any, or all of the photographs and descriptions submitted.

The Convention Will Be Held April 11 and 12
Fort Armstrong Hotel,
Rock Island, Illinois

Illinois Travelers Auxiliary

ETTA COHN, Secretary

620 So. Michigan Ave., Chicago

CHICAGO STEEL SLITTING SHEAR

**LIGHT—POWERFUL
DURABLE**



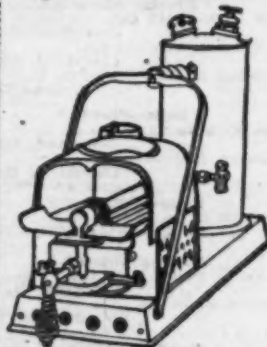
Capacity 10 gauge sheets
Any Length or Width
Flat Bars 3/16x2"
Weight 22 pounds

Price \$12.50 Net
F. O. B. Chicago

Made of pressed steel and equipped with hold-down. Blades of highest grade crucible steel. Most indispensable high grade shears made. Equal to other shears selling at over twice the price. **ORDER YOURS TODAY.**

DREIS & KRUMP MFG. CO., 7404 Loomis St., Chicago

Improved Models of Soldering Furnaces



Have you seen the improved models? The greatest line of Soldering Furnaces today on the market. They should be. There is more experience behind them. Forty-eight years of it! The Gems were popular before the majority of present day furnaces were heard of. It is the oldest, the recognized standard Soldering Furnace today.

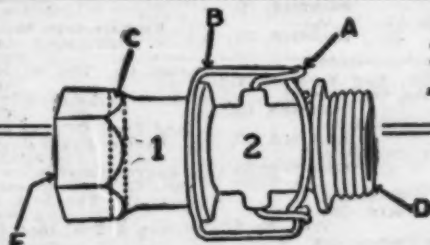
Look these models over. Each adds its class. Line them up and take your choice.

Do you want a Catalog?

**BURGESS SOLDERING
FURNACE CO.**

Department A COLUMBUS, O.

The simplest
hose
coupling
made



Snap
on or off
quickly.
Does
not leak.

HESSLER Perfect Hose Connection

YOU and your customers, everybody who uses a hose will welcome the Hessler Hose Connection.

It saves hose length and the hose, no kinking or twisting—no splashing, no leakage and you snap it on or off in a wink.

The Hessler will be a big, fast seller and a real profit maker.

Order a sample lot now—made in four sizes. Write today for price and circulars.

H. E. HESSLER CO.

Syracuse, New York

WIRE

electrical,
rope, barb-
ed, plain,
nails (bright

and coated), tacks, spikes, bale ties, hoops, springs, netting, wire fences, steel posts, steel gates, trolley wire, rail bonds, flat wire, cold rolled strip steel, piano wire, round and odd-shape wire, screw stock, welding wire, concrete reinforcement. Aerial tramways.

Illustrated books describing uses, FREE

**American Steel & Wire
Company**

Sales Offices: Chicago, New York
and All Principal Cities

BUYERS' DIRECTORY

- Pipe and Fittings—Stove.**
Meyer & Bro. Co., F., Peoria, Ill.
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
- Pipe—Conductor.**
Barnes Metal Products Co.,
Chicago, Ill.
- Berger Bros. Co.,
Philadelphia, Pa.
Dieckmann Co., Ferdinand,
Cincinnati, Ohio
Friedley-Voshardt Co.,
Chicago, Ill.
Lupton's Sons Co., David,
Philadelphia, Pa.
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
New Jersey Zinc Sales Co., The
New York, N. Y.
Wheeling Corrugating Co.,
Wheeling, W. Va.
- Posts—Steel Fence.**
American Steel & Wire Co.,
Chicago, Ill.
- Presses.**
La Salle Machine Works,
Chicago, Ill.
- Punches.**
Bertsch & Co.,
Cambridge City, Ind.
La Salle Machine Works,
Chicago, Ill.
Peck, Stow & Wilcox Co.,
Southington, Conn.
Ryerson & Son, Inc., Jos. T.,
Chicago, Ill.
Whitney Mfg. Co., W. A.,
Rockford, Ill.
Whitney Metal Tool Co.,
Rockford, Ill.
- Punches—Combination Bench and Hand.**
Hyro Mfg. Co., New York, N. Y.
Ryerson & Son, Inc., Jos. T.,
Chicago, Ill.
Whitney Metal Tool Co.,
Rockford, Ill.
Whitney Mfg. Co., W. A.,
Rockford, Ill.
- Punches—Hand.**
Hyro Mfg. Co., New York, N. Y.
Ryerson & Son, Inc., Jos. T.,
Chicago, Ill.
Whitney Metal Tool Co.,
Rockford, Ill.
Whitney Mfg. Co., W. A.,
Rockford, Ill.
- Putty—Stove.**
Connors Paint Mfg. Co., Wm.,
Troy, N. Y.
Pecora Paint Co.,
Philadelphia, Pa.
- Radiator Cabinets.**
The Hart & Cooley Mfg. Co.,
New Britain, Conn.
Tuttle & Bailey Mfg. Co.,
Chicago, Ill.
- Radiators—Shields.**
Beh & Co., Inc., New York, N. Y.
The Thomas & Armstrong Co.,
London, Ohio
- Ranges—Combination Gas & Coal.**
Quick Meal Stove Co.,
St. Louis, Mo.
Thatcher Co.,
Newark, N. J.
- Ranges—Gas.**
Quick Meal Stove Co.,
St. Louis, Mo.
- Register Shields.**
Beh & Co., Inc., New York, N. Y.
- Registers—Warm Air.**
Auer Register Co., Cleveland, Ohio
Forest City-Walworth Run
Foundries Co., Cleveland, O.
Hart & Cooley Co.,
New Britain, Conn.
Henry Furnace & Fdy. Co.,
Cleveland, Ohio
Independent Register & Mfg. Co.,
Cleveland, Ohio
Lamneck & Co., W. B.,
Columbus, Ohio
Meyer & Bro. Co., F., Peoria, Ill.
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
Mueller Furnace Co., L. J.,
Milwaukee, Wis.
Standard Furnace & Supply Co.,
Omaha, Neb.
Tuttle & Bailey Mfg. Co.,
Chicago, Ill.
United States Register Co.,
Battle Creek, Mich.
- Registers—Wood.**
American Wood Register Co.,
Plymouth, Ind.
Auer Register Co., Cleveland, Ohio
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
L. J. Mueller Furnace Co.,
Milwaukee, Wis.
United States Register Co.,
Battle Creek, Mich.
- Repairs—Stove and Furnace.**
Hessler Co., H. E., Syracuse, N. Y.
Kramer Bros. Fdy. Co.,
Dayton, Ohio
Northwestern Stove Repair Co.,
Chicago, Ill.
- Ridging.**
Armco Distributors Ass'n of
America, Middletown, Ohio
Lupton's Sons Co., David,
Philadelphia, Pa.
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
- Rivets—Stove.**
The Kirk-Latty Co.,
Cleveland, Ohio
Lamson & Sessions Co.,
Cleveland, Ohio
Ryerson & Son, Inc., Jos. T.,
Chicago, Ill.
- Rods—Stove.**
The Kirk-Latty Co.,
Cleveland, Ohio
Lamson & Sessions Co.,
Cleveland, Ohio
- Rolls—Forming.**
Bertsch & Co.,
Cambridge City, Ind.
- Roofing Cement.**
Connors Paint Mfg. Co., Wm.,
Troy, N. Y.
Pecora Paint Co.,
Philadelphia, Pa.
- Roof—Flashing.**
Hessler Co., H. E., Syracuse, N. Y.
Milwaukee Corrugating Co.,
Milwaukee, Wis.
- Roofing—Iron and Steel.**
Armco Distributors Ass'n of
America, Middletown, Ohio
Burton Co., The W. J.,
Detroit, Mich.
Friedley-Voshardt Co.,
Chicago, Ill.
Inland Steel Co.,
Chicago, Ill.
Merchant & Evans Co.,
Philadelphia, Pa.
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
Osborn Co., The J. M. & L. A.,
Cleveland, Ohio
Ryerson & Son, Inc., Jos. T.,
Chicago, Ill.
Wheeling Corrugating Co.,
Wheeling, W. Va.
- Roofing—Tin.**
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
Taylor Co., N. & G.,
Philadelphia, Pa.
Wheeling Corrugating Co.,
Wheeling, W. Va.
- Roofing—Zinc.**
New Jersey Zinc Sales Co., The,
New York, N. Y.
- Rubbish Burners.**
Hart & Cooley Co.,
New Britain, Conn.
- Sal-Ammoniac.**
Special Chemicals Co.,
Waukegan, Ill.
- Schools—Sheet Metal Pattern Drafting.**
St. Louis Technical Institute,
St. Louis, Mo.
- Schools—Warm Air Heating.**
National Heatcraft Institute,
Peoria, Ill.
St. Louis Technical Institute,
St. Louis, Mo.
- Screws—Hardened Metallic Drive.**
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
Parker-Kalon Corp.,
354 West 13th St., New York
- Screws—Hardened Self-Tapping, Sheet Metal.**
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
Parker-Kalon Corp.,
200 Varick St., New York
- Screens—Perforated Metal.**
Harrington & King Perforating
Co., Chicago, Ill.
- Shears—Hand and Power.**
Marshalltown Mfg. Co.,
Marshalltown, Iowa
Peck, Stow & Wilcox Co.,
Southington, Conn.
Ryerson & Son, Inc., Jos. T.,
Chicago, Ill.
Unishear Co., Inc.,
New York, N. Y.
Viking Shear Co.,
Erie, Pa.
- Sheet Metal Screws—Hardened, Self-Tapping.**
Parker-Kalon Corp.,
200 Varick St., New York
- Sheets—Black and Galvanized.**
Armco Distributors Ass'n of
America, Middletown, Ohio
Burton Co., The W. J.,
Detroit, Mich.
Inland Steel Co.,
Chicago, Ill.
Merchant & Evans Co.,
Philadelphia, Pa.
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
Osborn Co., The J. M. & L. A.,
Cleveland, Ohio
Ryerson & Son, Inc., Jos. T.,
Chicago, Ill.
Taylor Co., N. & G.,
Philadelphia, Pa.
Wheeling Corrugating Co.,
Wheeling, W. Va.
- Sheets—Iron.**
Armco Distributors Ass'n of
America, Middletown, Ohio
Merchant & Evans Co.,
Philadelphia, Pa.
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
Ryerson & Son, Inc., Jos. T.,
Chicago, Ill.
- Sheets—Tin.**
Merchant & Evans Co.,
Philadelphia, Pa.
Taylor Co., N. & G.,
Philadelphia, Pa.
- Sheets—Zinc.**
New Jersey Zinc Sales Co., The,
New York, N. Y.
- Shingles and Tiles—Metal.**
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
Wheeling Corrugating Co.,
Wheeling, W. Va.
- Shingles—Zinc.**
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
- Sifters—Ash.**
Diener Mfg. Co., G. W.,
Chicago, Ill.
- Sky Lights.**
Lupton's Sons Co., David,
Philadelphia, Pa.
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
- Salps.**
Peck, Stow & Wilcox Co.,
Southington, Conn.
Ryerson & Son, Inc., Jos. T.,
Chicago, Ill.
- Solder.**
Chicago Solder Co., Chicago, Ill.
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
- Soldering Furnaces.**
Burgess Soldering Furnace Co.,
Columbus, Ohio
Diener Mfg. Co., G. W.,
Chicago, Ill.
Quick Meal Stove Co.,
St. Louis, Mo.
Ryerson & Son, Inc., Jos. T.,
Chicago, Ill.
- Soldering Supplies.**
Special Chemicals Co.,
Waukegan, Ill.
- Specialties—Hardware.**
Diener Mfg. Co., G. W.,
Chicago, Ill.
Hessler Co., H. E., Syracuse, N. Y.
Stars—Hard Iron Cleaning,
Fanner Mfg. Co., Cleveland, Ohio
- Statuary.**
Friedley-Voshardt Co.,
Chicago, Ill.
Gerock Bros. Mfg. Co.,
St. Louis, Mo.
- Stove Pipe Reducers.**
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
- Stoves—Camp.**
Quick Meal Stove Co.,
St. Louis, Mo.
- Stoves—Gasoline and Oil.**
Quick Meal Stove Co.,
St. Louis, Mo.
- Stoves and Ranges.**
Quick Meal Stove Co.,
St. Louis, Mo.
Thatcher Co.,
Newark, N. J.
- Tacks, Staples, Spikes.**
American Steel & Wire Co.,
Chicago, Ill.
- Tileplate.**
Burton Co., The W. J.,
Detroit, Mich.
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
Osborn Co., The J. M. & L. A.,
Cleveland, Ohio
Taylor Co., N. & G.,
Philadelphia, Pa.
- Tools—Tin Smith's.**
Bertsch & Co.,
Cambridge City, Ind.
Burton Co., The W. J.,
Detroit, Mich.
Dries & Krump Mfg. Co.,
Chicago, Ill.
Hyro Mfg. Co., New York, N. Y.
Marshalltown Mfg. Co.,
Marshalltown, Iowa
Osborn Co., The J. M. & L. A.,
Cleveland, Ohio
Peck, Stow & Wilcox Co.,
Southington, Conn.
Ryerson & Son, Inc., Jos. T.,
Chicago, Ill.
Viking Shear Co.,
Erie, Pa.
Whitney Mfg. Co., W. A.,
Rockford, Ill.
Whitney Metal Tool Co.,
Rockford, Ill.
- Torches.**
Burgess Soldering Furnace Co.,
Columbus, Ohio
Diener Mfg. Co., G. W.,
Chicago, Ill.
Quick Meal Stove Co.,
St. Louis, Mo.
Ryerson & Son, Inc., Jos. T.,
Chicago, Ill.
- Trade Extension.**
Copper & Brass Research As-
sociation, New York, N. Y.
Sheet Steel Trade Extension
Committee, Pittsburgh, Pa.
- Trimnings—Stove.**
Fanner Mfg. Co., Cleveland, Ohio
- Ventilators.**
Aeolus Dickinson Co., Chicago, Ill.
Akrot Ventilators, Inc.,
Chicago, Ill.
Arex Company,
Chicago, Ill.
Berger Bros. Co.,
Philadelphia, Pa.
Friedley-Voshardt Co.,
Chicago, Ill.
Kernchen Co.,
Chicago, Ill.
Lupton's Sons Co., David,
Philadelphia, Pa.
Milwaukee Corrugating Co.,
Mil., Ch'go, La Crosse, Kan. City
Standard Ventilator Co.,
Lewisburg, Pa.
- Ventilators—Ceiling.**
Hart & Cooley Co.,
New Britain, Conn.
Henry Furnace & Fdy. Co.,
Cleveland, Ohio
Tuttle & Bailey Mfg. Co.,
New York
- Windows—Steel.**
Lupton's Sons Co., David,
Philadelphia, Pa.
- Wire—Electrical.**
American Steel & Wire Co.,
Chicago, Ill.
- Wire Hoops.**
American Steel & Wire Co.,
Chicago, Ill.
- Wire Rope.**
American Steel & Wire Co.,
Chicago, Ill.
- Zinc.**
Merchant & Evans Co.,
Philadelphia, Pa.
New Jersey Zinc Co., The,
New York, N. Y.

WANTS AND SALES

Yearly subscribers to the **AMERICAN ARTISAN** may insert advertisements of not more than fifty words in our Want and Sales Columns **WITHOUT CHARGE**.

Such advertisements, however, must be limited to help or situation wanted, tools or equipment for sale, to exchange or to buy, business for sale or location desired and must reach our office by Thursday of the week of publication. This privilege is not extended to manufacturers or jobbers—or those making a business of buying and selling used machines, employment agencies and brokers.

When sending advertisement state whether your name or blind number is to be used.

BUSINESS CHANCES

Lightning Rods—Dealers who are selling Lightning Protection will make money by writing to us for our latest Factory to Dealer Prices. We employ no salesmen and save you all overhead charges. Our Pure Copper Cable and Fixtures are endorsed by the National Board of Fire Underwriters and hundreds of dealers. Write today for samples and prices. L. K. Diddle Company, Marshfield, Wisc.

For Sale—Sheet metal and radiator shop in Florida town, county seat, 3,500 population, 50 miles from Tampa. Plenty of tools. Inventories at \$1,200.00. \$500.00 down and balance to suit or \$1,000.00 cash. Rent, \$15.00 month. No competition. Ideal living conditions. Nice house for rent at \$15.00. Address Box 372, Dade City, Fla. Z-467

For Sale—Sheet metal and plumbing business located in one of the best county seats in central Indiana. Established 21 years and has always done a profitable business. Good reason for selling. For further information write **AMERICAN ARTISAN**, 620 S. Michigan Ave., Chicago, Ill. J-469

For Sale—Small stock of hardware with tinshop in connection, in a well established small town in Southern Wisconsin. Population 1,000. No competition. For further particulars address J. E. Blades, Benton, Wisconsin. K-469

For Sale—Sheet metal shop. Fully equipped. 7 years in business, 5 men working. Must sell on account of health. Write for particulars. Address A. Kaufman, 2146 Larimer Street, Denver, Colo. L-468

For Sale—Sheet metal and furnace shop in county seat town of 3,500 population in Northeastern Iowa. Good set of tools and good business. Shop 25x40. Address H-466, **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois.

SITUATION WANTED

Position Wanted—By man of good habits. 20 years' experience in sheet metal work and furnace and installation. Can go at once. Last employed by the Lennox Furnace Company. Want to locate in New York, Penna., Ohio or Indiana. Best of references. If interested in a steady and good workman please write at once. Address Henry Giberson, Elk Point, S. D. Y-468

SITUATION WANTED

Position Wanted—By first class sheet metal and copper worker. Minnesota or California preferred. Will consider other locations. Experienced in ventilation, skylight, gutter and furnace work. Married and with present firm 8 years. State wages and work. Can come at once. Address A-469, **AMERICAN ARTISAN**, 620 S. Michigan Ave., Chicago, Ill.

Position Wanted—By a practical experienced all around tinner. 30 years' experience. Prefer general all around jobbing shop. Can take charge and run shop. Can do all kinds of roofing and heating and ventilating. Small town preferred. Can come at once. Address P. S. McGriffin, Inkster, Mich. Z-468

Position Wanted—By first class sheet metal worker and furnace man. 16 years' experience. Can work from blueprints, lay out own work, do Standard Code installation and do heating and ventilating engineering. Experienced on factory maintenance and blow pipe work. Can come at once. Address Box 325, Rochester, New York. B-469

Situation Wanted—By first class sheet metal worker, 25 years' experience. Can read blue prints and cut patterns for all kinds of sheet metal work. Expert furnace installer. Can take charge of shop, and handle men and work for employer's interest. Married. Address Wm. F. Laudenschlager, 2106 Indiana Ave., Columbus, Ohio. S-468

Situation Wanted—By an all around combination man. Have an Iowa State plumbing license. Can do steam fitting and hot air furnace work. Good at pumps and wind mills. Can do some tinning. Address W-465, **AMERICAN ARTISAN**, 620 S. Michigan Ave., Chicago, Ill.

Position wanted by first-class tinner and furnace man. Twelve years of experience and can do inside and outside work and draft own patterns. Married. State wages in first letter. Address F-470, **AMERICAN ARTISAN**, 620 S. Michigan Ave., Chicago Ill.

An A-1 sheet metal worker and estimator and layout man, middle aged, wants steady job. Experienced in cornice, skylight, heating and ventilating, blow pipe. Please state working conditions. Address Dan Coleman, 1524½ Broadway, Mattoon, Illinois. X-468

Position wanted by first-class tinner, roofer and furnace man. Married and want steady work. Worked 15 years for one man. Illinois preferred. Address "Tinner," 1133 S. Race, Princeton, Ind. E-470

Wanted—Permanent position by practical plumber and sheet metal worker. A real mechanic and production man carrying journeyman's license. Address K-467, **AMERICAN ARTISAN**, 620 S. Michigan Ave., Chicago, Ill.

Situation Wanted—By first-class tinner. Age 35 years. 15 years' experience. Warm air heating a specialty. Address G-470, **AMERICAN ARTISAN**, 620 S. Michigan Ave., Chicago, Ill.

Situation Wanted—By experienced stove and furnace salesman acquainted with Michigan hardware trade. Address S-467, **AMERICAN ARTISAN**, 620 S. Michigan Ave., Chicago, Ill.

Position wanted by a practical tinner, plumber and furnace man. 20 years' experience. Address Wm. Meyer, Box 594, Montesello, Iowa. F-469

Situation Wanted—By metal worker and furnace man. 15 years at the trade. Married, sober and want a steady job. Address W. E. Hull, 409 Military, Dodge City, Iowa. T-468

HELP WANTED

Wanted—Combination sheet metal worker and plumber not over 40 years of age. Must be experienced in all kinds of metal work and able to do a good job of plumbing. Steady job for one who can deliver. State wages and give age and reference in first letter. Address Milton L. Kistler, Alexander City, Ala. D-470

HELP WANTED

Wanted at Once—A No. 1 metal worker and furnace installer. Must understand Standard Code. Would like a man who can also do plumbing. None but A1 mechanic need apply. Steady work and top wages. State wages wanted. Address C-470, **AMERICAN ARTISAN**, 620 S. Michigan Ave., Chicago, Ill.

Wanted at Once—Good all around tinner and furnace man. Steady job, 12 months in the year. Wages \$40.00 per week. 8-hour day. Address J. H. Barnett, Dodge City, Kansas. G-469

TINNERS' TOOLS

For Sale—1 only—New Rapid Slitting Shear 15-inch throat, 1 angle iron Rolls or formers, back geared, 1 seaming head stake and heads (also some extra large heads); 1 30-inch mandrel; 1 extra long tapered bench mandrel; 1 30-inch groover; 1 20-inch folder; 2 raising hammers; 2 slating and other hand tools. Write at once for price. I. B. Allen, care Gen. Delivery, Ft. Wayne, Ind. P-468

For Sale—One set Pexto 36-inch open rolls, one 30-inch Niagara Folder, one Pexto elbow edging machine, one combination bead and crimp machine. These machines have been used 6 months. Address F. O. Haynes, 251 S. Broadway, Peru, Ind. C-469

For Sale—An Oster Threader with ratchet and cutoff knife. Cuts threads 2¼ inch, 3 inch, 3½ inch, and 4 inch. Has cut less than 100 threads. In perfect working order. Cost \$32.50 wholesale—\$15.00 takes it. Aberdeen Furnace Company, Box 983, Aberdeen, So. Dak. R-468

Wanted—One 4-ft brake, one 3 or 4-ft squaring shear, one crimper and beader, one burring machine and stand complete. Equipment must be in good condition. Will pay cash. Address D-469, **AMERICAN ARTISAN**, 620 S. Michigan Ave., Chicago, Ill.

For Sale—One P. S. and W. Shear with curved blades for 7", 8", 10" and 12" 4 pc. Elbows, 1 Niagara Elbow Edger, 1 Niagara Seam closer for Adj. Elbows. All in first class condition and offered at a bargain. Address E. H. Ward & Co., Lansing, Mich. E-469

For Sale—One 30-inch forming roller and other small tools. Address Wm. F. Quirnbach, 1496 Willow Road, Winnetka, Ill. X-469

What do you want in bench or hand tools? Write to I. B. Allen, care Gen. Delivery, Ft. Wayne, Ind. M-468

Wanted—To buy complete set of tinner's tools. Address Billart & Rens, Oakland City, Ind. O-468

MISCELLANEOUS

For Sale—One 125-gallon oil tank equipped with Bowser pump. Was used for linseed oil. One galvanized kerosene tank, 100-gallon capacity, with faucet below. One hand elevator with platform. Heller make. One box stencils, from A to Z, also numbers from 0 to 9. Chevrolet sedan, newly painted, \$125 will take it. All above in good condition. Address John P. Paulus, 220 Franklin St., Port Washington, Wis. B-470

For Sale—A new patented type heater for brooders and colony houses for young chickens. Burns any kind of fuel. 100 per cent efficient than others. For information, Address W. E. Toler, Pawnee, Oklahoma. H-469

For Sale—Two sets of aluminum patterns for steel furnaces, size 18 and 21-inch. \$150. f. o. b. Denver, Colo. Sun Furnace Works, Denver, Colo. Y-469

MISCELLANEOUS

For Sale—One Model D, 110 volt D. C., 1500 watts, Kohler power light plant. Never used. 10% less than cost. Address A-470, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Ill.

For Sale—One new Laco Automatic Oil Gas Burner complete with Thermostat, a bargain if taken at once. Address J-468, AMERICAN ARTISAN, 620 S. Michigan Ave., Chicago, Illinois.

For Sale—One Model 1b Copeland electric refrigeration unit complete. Fits any box. Never used. 10% less than cost. Address Z-469, AMERICAN ARTISAN, 620 So. Michigan Ave., Chicago, Ill.

Would like to get in communication with G. C. Marion, Sheet Metal Worker. Address Griffith & Griffith, P. O. Box 194, Charleston, W. Va. K-468

BOOKS

The Ventilation Handbook, by Charles L. Hubbard. A practical book designed to cover the principles and practice of ventilation as applied to furnace heating, ducts, flues and dampers for gravity heating; fans and fan works for ventilation and hot blast heating by means of a comprehensive series of questions, answers and very plain descriptions easy to understand. Price \$2.00. Order from Book Dept., AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

Exhaust and Blow Piping, by Hayes—Exhaust and Blow Piping has had an unusually big demand. A fresh supply is now off the press and is in our hands for immediate delivery. It has an invaluable treatise on the planning, cost, estimation and installation of fan piping in all its branches giving all necessary guidance in fan work blower and separator construction. 159 pages, 5x3. 51 figures. Cloth, \$2.00. Order from Book Dept., AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

SPECIAL NOTICES

The Rate for Special Notices
— displayed want ads —
\$3.00 per inch per insertion

When sending copy state whether your name or blind number is to be used—also how many insertions are desired.

PATENTS

HUBERT E. PECK
Patent Attorney
Barrister Bldg., WASHINGTON, D. C.

EXPERIENCED FURNACE SALESMAN WANTED

By old established firm for Ohio, central location preferred. Must have a good past record, all communications held confidential. Our salesmen know of this advertisement. Address L469.

WANTED

Experienced Furnace Salesman by old established firm for Indiana. Central location preferred. Must have a good past record. All communications held confidential. Our salesmen know of this advertisement. Address M469, American Artisan, 620 South Michigan Avenue, Chicago, Ill.

SPECIAL NOTICES**FURNACE SALESMAN WANTED FOR IOWA**

If you are a furnace salesman who can produce, figure jobs according to the Standard Code and have a clean, successful selling record, you are the man we want. Give reference, salary wanted, and previous employment for the past five years—must own car with which to cover territory. A fine opening for the right man. Address H468, American Artisan, 620 South Michigan Avenue, Chicago, Ill.

FOR SALE

Large, well equipped sheet metal, fireproof door and window manufacturing plant, established since 1890 in a city of over 450,000 population. Shop does from \$275,000.00 to \$300,000.00 business per year. Manufacturers of Underwriters' labeled products. Enjoys the confidence of a large clientele. Best reasons for selling. Address R469, American Artisan, 620 South Michigan Avenue, Chicago, Illinois.

WANTED

Experienced Furnace Salesman for opening as district sales manager. Lennox Furnace Company, Marshalltown, Iowa. S469

We have opening for two branch managers in Chicago. If you can show a past successful selling record, get in touch with our office in Chicago. Round Oak Heating Co., 711 S. Wells St., Chicago, Ill. T469

We Are Looking for a Manufacturer

to Produce a Wonderful New Patented Gas Furnace on Royalty Basis. Address W469, American Artisan, 620 So. Michigan Avenue, Chicago, Illinois.

SPECIAL NOTICES**SITUATION WANTED**

by furnace salesman who can not only sell furnaces but who knows the installation and estimating end of the business from A to Z. I am a firm believer in the Standard Code and fan systems when necessary. Experienced and thoroughly reliable. Address D468, American Artisan, 620 S. Michigan Ave., Chicago, Ill.

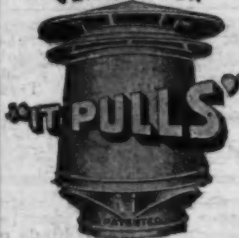
The

name and
address label
on your
copy
of

AMERICAN ARTISAN

tells you
the date to which
your subscription
is paid.

In order not to
miss any issues
your renewal
should be

*paid in advance***THE STANDARD FOR MANY YEARS****It Pulls Business Your Way!****KERNCHEN SIPHONAGE VENTILATOR**

KERNCHEN COMPANY
Ventilating Engineers
Room 1576, 113 W. WASH. ST., CHICAGO

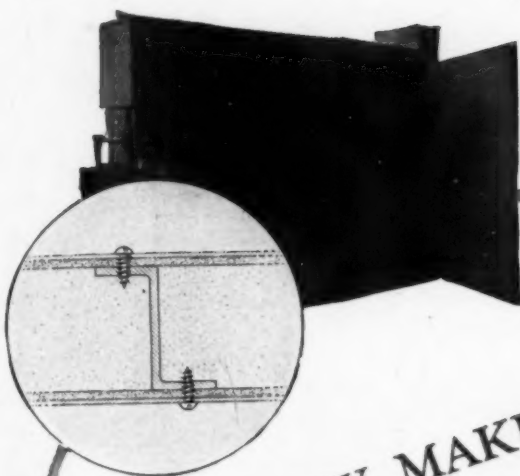
SUPPLY your next job with "K-S-V" and you never will have a complaint. Complete stock on hand for prompt shipment.

Write to-day for complete data and prices
Made only by



Pat. Applied For
TEST ITS PULLING POWER AND NOTICE ITS EFFICIENCY—

A quality product, simple in design and accurate in detail.
Write for Information and Prices.
AKKRAT VENTILATORS, INC.
1191 Builders Bldg. CHICAGO



**“EASIER, QUICKER
and CHEAPER TO USE
AND THEY MAKE BETTER FASTENINGS—”**

**Say the manufacturers of
THERMO ELECTRIC OVENS**
—and wherever PARKER-KALON Hard-
ened Self-Tapping SHEET METAL
SCREWS are used for joining sheet metal,
and making fastenings to sheet metal,
similar results are obtained.

These Screws are so threaded and hard-
ened as to make them capable of cutting
their own thread in the metal, like a tap,
as they are screwed in. They eliminate the
costly tapping operation and dispense with
tapping plates and other devices. Further-
more, they make more substantial fasten-
ings—fastenings that withstand vibration.

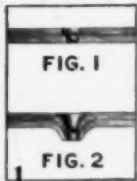
Hardened Self-Tapping Sheet Metal
Screws are used extensively by makers of
automobiles, automobiles accessories, rail-
way cars, ships, aeroplanes, metal buildings,
metal furniture, metal refrigerators, stoves
and furnaces; metal windows, doors and
partitions; cornices, skylights and scores of
other things made entirely or partly of
sheet metal. In many plants these Screws
save thousands of dollars a year.

Can be furnished in sizes to suit all
requirements.

PARKER-KALON
HARDENED SELF-TAPPING
Sheet Metal Screws

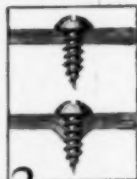
PATENTED
APR. 1, 1919—No 1299232 — MAR 28, 1922—No 1411104
AUG 14, 1923—No 1455148 — FEB 10, 1925—No 1528192
OTHERS PENDING

Easy to use



1
Punch or drill
a hole as in Fig.
1; or pierce a
hole as in Fig. 2.

no skill required



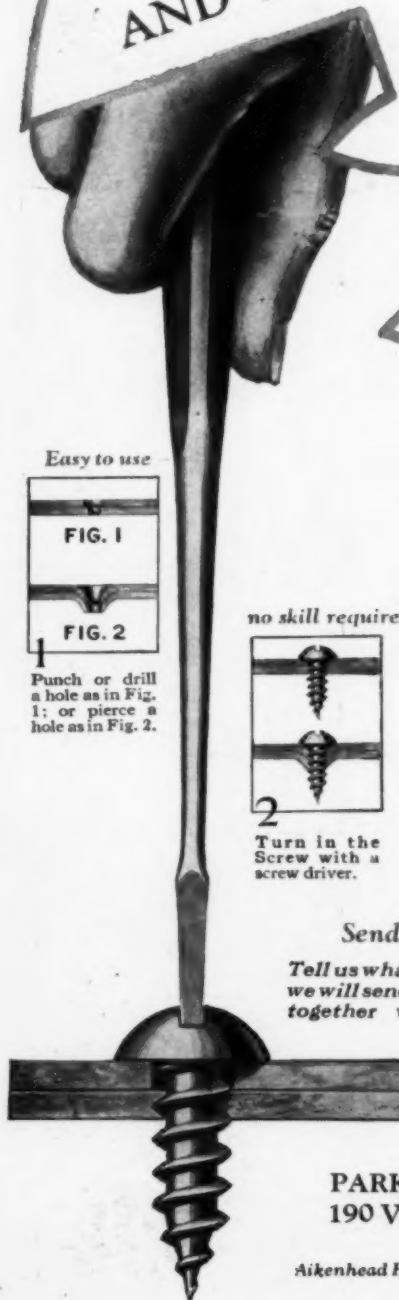
2
Turn in the
Screw with a
screw driver.

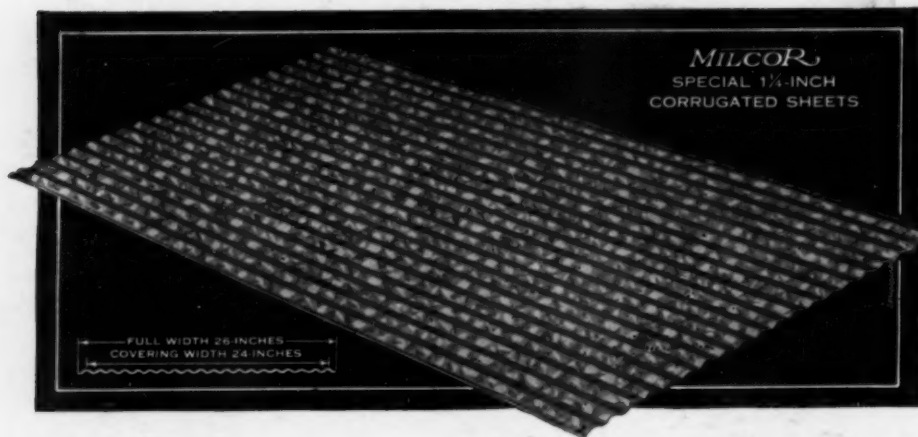
Send for FREE Samples

*Tell us what you want to fasten and
we will send samples for experiment
together with full information.*

PARKER-KALON CORPORATION
190 Varick Street, New York, N. Y.

*Distributed in Canada by
Aikenhead Hardware Limited, 17-21 Temperance St., Toronto*



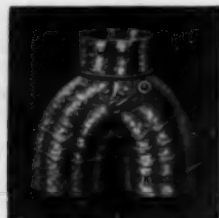


What you want—and when!

YOU will find it in the Milcor Net Price Book. Carry it on your hip. Thousands of sheet metal men do. It's a business-like habit. For Milcor has *what you want....ready when you want it!*

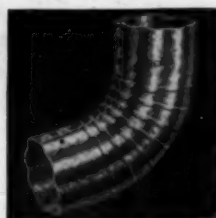
Your Trade appreciates Milcor quality and service, too! Same-day deliveries direct from our Milwaukee, Chicago, Kansas City or La Crosse plants....or from leading jobbers.

For over 20 years, these famous "Kuehn's Korrekt Kutoffs" (Pat'd.) have been made by Milcor. And they are still the best cutoffs made.



The famous Milcor "Crimpedge Gutter" — the most popular single-bead eaves trough ever made. Millions of feet of it in service. Standardize on it.

Milcor Onepiece flat-crimp conductor pipe Elbows, round or square, are designed to withstand severe service. Dependable, uniform quality.



Milcor products are now made not only in Steel, but also in "Coppered Metal", Wilder Metal, pure Zinc, pure ANACONDA Copper, or in the famous rust-resisting ARMCO Ingot Iron. Look for this mark:



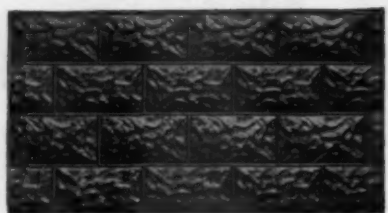
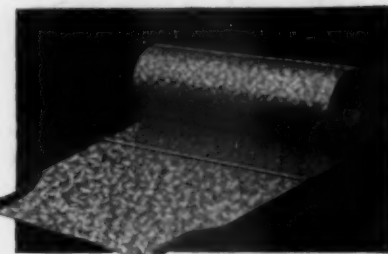
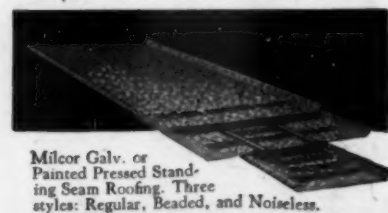
Style box-gutters, conductor pipe, heads and bands, architectural sheet metal, marquees, metal ceilings, ventilators, skylights, metal lath and allied products are included in the complete Milcor Line.

MILWAUKEE CORRUGATING COMPANY
MILWAUKEE, WIS. CHICAGO, ILL. KANSAS CITY, MO LA CROSSE, WIS.

MILCOR

SHEET METAL PRODUCTS

Manufacturing Furnace Pipe and Fittings, Stove Pipe and Elbows, and warm air heating equipment is an important part of Milcor activities.



12
K